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ABSTRACT

This book contains four papers by noted educational planning experts that, together, cover practically all the implications of undertaking 'futurological' studies in education. Louis Emmery, in his "Alternative Educational Futures and Educational Policy-Planning," summarizes the three papers that comprise the remainder of the document and stresses the importance of viewing alternative educational futures in the context of policy planning or "second generation" educational planning. Torsten Husen then describes three major purposes for exploring alternative educational futures. In the third paper, Warren Ziegler develops a taxonomy consisting of five models, which purports to synthesize the current practice of American educational planning as it views the future. Finally, Willis Harman focuses on alternative future states of American society that represent, in some sense, alternative dominant belief and value systems. (Author/JH)

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Centre for Educational Research and Innovation (CERI)

ALTERNATIVE EDUCATIONAL FUTURES IN THE UNITED STATES AND IN EUROPE:

METHODS, ISSUES AND POLICY RELEVANCE

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FOREWORD

This report was prepared by the Centre for Educational Research and Innovation as Background Report No. 12 for the Paris Conference on Policies for Educational Growth, organised by the OECD in 1970.

The proceedings of the Conference are presented in a set of eight volumes consisting of:

- The General Report of the Conference published under the title: EDUCATIONAL POLICIES FOR THE 1970's,

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III - TRENDS IN EDUCATIONAL EXPENDITURE IN OECD COUNTRIES SINCE 1950 - (Background Report No. 2).

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(Background Report No. 8).

The Role of Analysis in Educational Planning -
(Background Report No. 9).

VII - EDUCATION AND DISTRIBUTION OF INCOME -
(Background Report No. 11).

and the present publication:

VIII - ALTERNATIVE EDUCATIONAL FUTURES IN THE UNITED STATES AND IN EUROPE: METHODS, ISSUES AND POLICY RELEVANCE -
(Background Report No. 12).

PREFACE

For policy-makers and planners education has the worrying characteristic that the values underlying it seem to command the rapid and somewhat uncontrollable growth of expenditures, to a large extent from the public pocket. This process is implicit in the principle of a free and equal education for everybody in a democratic society. How can such a process be "planned" in the interests of individuals and of society? This question has become a vital one in all countries, because although we recognize the value of a spontaneous and creative activity in the classroom, we also have to acknowledge that an organised system of education involving the management of massive resources has become a condition of effective education in the school.

The need for effective approaches to the management of the educational system has resulted in a remarkably fast development of educational planning in OECD countries in the last 10-15 years. During the 1950's and 1960's the essential task was to find some way of relating the growth of the educational system to the growth of the economy. Clearly the post-war achievement of "institutionalized" economic growth had to be related to some notions of social development in fields such as education, health and the use of leisure. It was no accident that, in education, the development of educational planning was dominated by the endeavour to establish quantitative relationships between economic growth, the manpower needs of the economy, and the social demand for education by individuals and families. Methods of analysing relationships between these variables were sought as a means of determining the scale and broad structure of growth of educational systems.

Although it has become fashionable to consider such a "quantitative" approach to educational planning to be out of date, no observer of education in the OECD countries today could deny the pressing reality of finding a balance between economic needs, the demands of society for education, and the development of satisfying life-patterns for individuals.

What has become clear, however, is that we cannot answer these questions without major qualitative changes in education, and we cannot plan such changes without reference to the future. That is why there is now growing emphasis on the planning of "alternative educational futures" - that is to say the clear statement of alternative paths of educational development and the spelling out of their implications. The purpose of the following report is to sketch out some approaches to the problem.

At a time when "futurology" is somewhat under attack, as are other methodologies for producing the answers to long-range social problems, a word of justification for issuing this volume is perhaps needed. The attack on "futurology" is often made on the grounds that forecasts of the future prove to be inaccurate after the event. This is somewhat beside the point, for not only is it in the very nature of social policy to relate action to some idea of the future (even if it is often unstated), but it is also inherent in such policies that their course is changed as the realities of the day come closer. Human affairs thus resemble more a rough and oscillating course than a Cassandra-like fatality, but the image of the future is always present and powerful. There are, however, two realities which are sometimes overlooked: the first is that there are several paths open to society at any point of time; and the second is that choices about the future are limited by the realities of the past. The problem of long-term planning in education is thus to state clear alternatives and their implications, and to relate decision-making to them in terms of the realities of the existing values, structures and resources of the educational system.

Needless to say, the present report has no greater pretension than to lay out the problems and to put forward the views of some noted experts in the OECD countries. Although reference is made to "second-generation educational planning" it would be wrong to look upon this as a planning "recipe" to replace the previous version. It does, however, begin to grapple with the problem that the planning of educational growth must take account of educational innovations in the qualitative sense, and that such innovations need to be seen in the context of future patterns of society.

J. R. Gass,
Director,
Centre for Educational Research
and Innovation

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Part One

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INTRODUCTION

The "alternative educational futures" approach - as defined below - is substantially different from the long-term educational forecasts as practised up until now. These long-term forecasts have mainly focused on relatively few, easily quantifiable, variables, such as enrolments or enrolment rates, graduates, new entrants, global expenditure figures, etc., and they were mostly single-valued. The wider environment in which education operates is sometimes explicitly taken into account, but in a rather partial way. Thus economic and technological developments are brought into the picture through manpower forecasts. There have also been attempts to investigate which factors determine the individual demand for education by bringing into the analysis a series of regional and social background factors. "First generation" educational planning (FGEP) has often been equated with these types of long-term forecasts, which are concerned with the scale of the educational operation and sometimes related to the future scale of the present economy. There is some evidence to support the view that this predominantly quantitative and partial approach of forward-looking educational "planning" has limited the possibilities for fundamental changes in the educational process, and has only allowed the system to proceed on less expensive lines of development. This does not mean that no structural innovations have occurred in the educational systems of Member countries - they have. What it does mean is that the relationship has not been obvious between the forecasts as practised up to now on the one hand, and structural, curriculum and educational technological changes on the other. It also means that the future consequences of such "qualitative" changes have not always been clear.

Thus a somewhat paradoxical situation has developed. On the basis of the "scale forecasts", decisions are sometimes taken as to the number of places to be provided in the various branches of the educational system, as well as concerning teachers and other resource input

implications. At the same time more qualitative changes are being introduced to meet a variety of objectives. It is not always easy to find out how far the actions undertaken are consistent with the objectives, and among each other, what their major future implications are likely to be both in and outside the education sector, and what the role of the above-mentioned "scale forecasts" has been, if any, in shaping these decisions. In short, and exaggerating only a little, in the case of the FGEP forecasts it is sometimes difficult to see how they have influenced educational policy decisions; at the same time it is equally difficult to detect what the future consequences are of many of the educational policy decisions, because they have rarely been accompanied by even a minimum of consequential analysis.

The types of forecasts mentioned above come closest to what the taxonomy to be presented in Part Three of this volume calls "the future-as-an-extrapolation-of-the-present". They concentrate mainly on demographic and economic variables and they assume that the future will not substantially differ from the present except within the limits prescribed by some of the endogenous variables selected for the analysis (the "easily quantifiable" variables mentioned earlier). They have not forced educational planners and policy-makers to systematically speculate about alternative societal futures, alternative educational goals for the future, alternative ways of reaching these goals, nor about complex qualitative aspects of education.

Exploring alternative educational futures does not mean making longer-term forecasts of the type described above. It does not mean extrapolating the demographic and economic variables to the year 2000 instead of to the year 1980, for example. Neither does it imply doing away with them altogether. It does imply something more which makes the alternative educational futures approach qualitatively and substantially different from FGEP forecasts. Exploring alternative educational futures includes as a minimum the following aspects:

i) Tracing through the future consequences of current and foreseeable decisions. This amounts to an attempt to determine alternative educational futures resulting from past and current policy decisions. It can be labelled a "forward running" or "exploratory" approach.

ii) Multi-dimensional goal assessment and alternative strategy considerations. This step implies obtaining a minimum amount of information concerning societal futures, and, also in the light of this information, an operationalisation of alternative educational goal structures. Educational strategies have to be explicated indicating how one can move from the present situation towards the direction as indicated by the goal

structures. It can be labelled a "backward running" or "normative" approach.

iii) Two pitfalls must be avoided: on the one hand, statements of policy alternatives based on a simple extrapolation of single variables which oversimplify the direction or complexity of social change; on the other hand, the so-called "creative" definition of normative "futures" which ignores the limitations of resource allocation and of the existing socio-economic structures and values. CERI will attempt to develop an approach which incorporates the advantages of both. Thus, the main feature of the alternative educational futures approach - besides its very long-term perspective - is its attempt to concentrate on issues, values and goals and to trace their quantitative and qualitative consequences back to the educational process.

In this Part (Chapter I) a summary will first be given of the bulk of this volume as presented in Parts Two to Four. These three papers together cover practically all aspects to be taken into account when undertaking "futurologic studies in education." In Chapter II of this Part special attention will be paid to the CERI approach to exploring alternative educational futures. In this connection much emphasis will be laid on the importance of viewing this alternative educational futures approach in the context of policy-planning, or "second generation" educational planning (SGEP), as it will be called here. This is in order not to let the futures approach hang in thin air, but, on the contrary, to link it firmly to the present through policy-planning formulation. In Chapter III an example will be presented taken from current CERI work illustrating the problems that arise when attempting a definition and an operationalisation of a specific goal, in this case the equal educational opportunity objective. A strong argument will be made to change the existing educational planning structures in a direction which integrates them closer into the entire educational decision-making structure and into educational policy formulation. Some of the necessary conditions for achieving this are outlined.

I

A PARTIAL SUMMARY OF THE PAPERS

The three papers to be presented in Parts Two to Four of this volume are complementary. Part Two sets forth in a concise way the purposes of the alternative educational futures approach. Part Three puts the stress on methods and particularly on the planning relevance of looking at alternative educational futures. Part Four emphasizes the importance of exploring societal futures - and more particularly of changes in belief and value systems - for the purposes of educational goal setting. *

A. THE PURPOSES OF EXPLORING ALTERNATIVE EDUCATIONAL FUTURES

In Part Two, three purposes for "futurologic studies in education" are presented. The first is the identification of future consequences of present planning and policy decisions. Important questions in this context are whether these decisions are in line with the goals, and which future alternatives have been excised by today's actions or non-actions. One conclusion drawn from a general discussion around the last question is that maximum flexibility ought to be imposed by educational planning in order to keep open as many acceptable future alternatives as possible. The importance of this kind of "consequential analysis" has been underlined in the introduction above. Interestingly enough, this aspect of operationalising the alternative futures approach is rather neglected in Parts Two and Three of this document.

* It is recalled that Part Four - contrary to Parts Two and Three - has not been prepared specifically for the Centre for Educational Research and Innovation (CERI) and for this Conference. However, since it covers an area which is not dealt with in such depth by the other papers, it was considered desirable to include it for reasons of complementarity.

The second purpose is to go beyond the traditional extrapolation of numerical trends. An example is given related to a study concerning the supply of, and the demand for, special subject teachers that was made by the 1955 Commission of Inquiry into the Swedish universities. After having explained why the forecasts contained in the Commission's report went wrong, the author concludes: "... a generous helping of imagination is called for when one tries to extrapolate development trends. In this particular case the acceleration tendencies which already existed ought to have given cause to think about the role of education both as investment and consumption, and hence about its attractiveness as well. If such reflections had been allowed to govern, the forecasts could have been corrected. It should also have been possible to predict the short-range effects of broadened educational opportunities". This question of the need for going beyond "the future-as-an-extrapolation-of-the-present" will be dealt with at some length in Part Three of this volume.

The third purpose of "futurologic studies" is to examine possible changes in social and political values. Here questions will have to be faced related to the kind of society that is deemed both plausible and desirable, and to the role of education in helping to bring about such a society. Along the same lines, the question must be asked whether the values that determine priorities and preferences will be essentially the same in two or three decades from now. In the words of the author: "I do not propose here to elaborate on how one undertakes to find out about tomorrow's value priorities. If we look at what happened to change social and political values during the past century, we often detect certain advance signals of what is in store where needs and values are concerned. Such a study will disclose that events constantly thrust up avant-gardists, many of them leading writers, whose ideas and reactions portend the coming shape of dominant values. These signals that point ahead to the future are to be found among writers, artists and intellectuals, but even more so among articulate young people". This crucial issue of changing belief and value systems is the main problem under discussion in Part Four.

B. PLANNING FOR THE FUTURE OF EDUCATION

In Part Three, Chapter II, a taxonomy is developed consisting of five models, which purports to synthesize the current practice of American educational planning as it views the future. It is presented in summarized form below, also because it can no doubt be applied beyond the American scene.

The first model is labelled the future-as-the-present. It has a lead-time of one year and could best be described as anticipatory

administrative behaviour. Obviously, this has nothing to do with the exploration of alternative educational futures. The attempts to introduce PPBS techniques do not seem to have provoked up till now, in practice, the formulation of new goals, or even a substantive debate over the relevance of accepted goals.

Second, one can distinguish the future-as-an-extrapolation-of-the-present. These are medium to long-term forecasts of the kind discussed briefly in the introduction above and which were called "scale" or "FGEP" forecasts. As was already mentioned there, they concentrate mainly on demographic and economic variables and they imply that the future will not differ substantially from the present except within the limits prescribed by the endogenous variables selected. This model, therefore, does not force educational planners and policy-makers to systematically explore alternative educational goals for the future. The complexities of the educational process do not enter the analysis and the planning framework, and neither do considerations about societal futures. In the words of the authors: "... projection of present trends is no substitute for a thorough examination of alternative educational goals and the provision of a forum for their discussion by the public".

As a third category can be singled out the single, alternative future. Here, in at least one, but usually not more than one, substantial way, the educational future is perceived as clearly different from the educational past. This single, substantially different future could apply, for example, to more effective teaching, to the utilization of new instructional technologies, to individualized instruction, etc. This approach is often crisis-generated and frequently puts, therefore, the emphasis on problem-solving related to past inadequacies rather than on stimulating a systematic and extensive exploration of future needs. This in turn clearly raises the whole issue of how educational innovation relates to a consideration of the longer-term alternatives for education. In short, it can be said that the single, alternative future tends to leave out more of importance than it includes.

The fourth model is called the technological future and is a variation of the third model above, but it encompasses a much longer time dimension. One critical variable, the education-technological, is assumed as paramount. What these longer-term technological speculations do not perform is the intricate analysis of futures history, which attempts to show the multiple steps between the present and this (or some other) vision of the future.

Finally, and fifth, there is the so-called comprehensive future model, which comes closest to what has been called in the introduction above the alternative educational futures approach. In this model the

emphasis is on multi-dimensional goal assessment and alternative strategy considerations. The exogenous variables (non-educational factors) are related in the future state of affairs to educational policy-making and planning in the present. The crucial problem with this approach is how to determine priorities in a complex goal structure and how to translate it into detailed plans of action.

It should be noted that if this latter kind of futures-thinking becomes both more systematized and more pervasive, it may very well cause a sharpening of value conflicts and interest conflicts. Generalized goal statements will no longer suffice at this stage. Not only are they inadequate for planning and decision-making: they also disfigure the real issues, either by covering them over (pretending a consensus where none exists) or by blocking the lines of communication and feedbacks among various elements in the polity, including between the official apparatus and the "client-groups". The point at issue here is whether different versions of the future held by different groups in the society would result in irreconcilable and disruptive conflicts about, in this case, educational goals and strategies. This leads into a discussion about the wider problem of societal futures.

C. BELIEF AND VALUE SYSTEMS

Part Four focuses on alternative future states of the society which represent in some sense, it is claimed, alternative dominant belief and value systems. Two contrasting societal futures are singled out. The so-called second-phase industrial society has the same operative values as the present society. * By contrast, in the so-called person-centred ("humanized technological") society these operative values have changed. A diversity of educational paths will be available, and men will not be judged on the basis of a single uniform academic standard. Competitive grading, therefore, will assume much less significance. In such a society, education will centre on developing self-learning habits and skills, on problem-solving and decision-making abilities, individuality, capability of continous self-renewal, and self-understanding.

The author undertakes an extensive search for indicators that might point in the direction of the "person-centred" society ("manifest revolutionary forces"). Two components within these forces are distinguished: a demand for the emancipation of minorities ("the perennial class warfare"), and the demand for a societal and moral reform

* "Operative values" are those values which would be inferred from actions taken. They are, therefore, not necessarily the same as those for which one professes allegiance.

on the part of those who are not impoverished in any ordinary sense ("the singular great dissent"). The author concludes that bad policy choices can result from taking only the first to be real, explaining away the second as an idiosyncrasy of the younger generation.

As to the implications for education, it is argued in Part Three that if society moves towards a "second-phase industrial" state one can anticipate increased emphasis on the role of education as playing a major part in accomplishing social goals and alleviating social problems (poverty, racial discrimination, environmental deterioration, etc.). There will probably be strong reliance on "behaviour shaping" approaches, involving the detailed specification of desired behaviours to be imparted by contingency management techniques. On the other hand, if society moves towards a "person-centred" dominance, goals will shift in the direction indicated, more emphasis on students becoming more effective thinkers and learners, developing inquiry and problem-solving skills, etc. Attention will be diverted from achieving behavioural objectives to setting conditions for spontaneous learning. Less attention may also be given to grading, credentialling, and otherwise labelling persons.

The essential message of Part Four - and in this it goes very far, probably too far for many - is that i) the real revolution is not in changing only the ghetto or the campus as institutions, without changing the existing belief and value system as well, and ii) educational experiences must be contemplated which are akin to psychotherapy, bringing the individual person in closer touch with his potentiality as an individual.

It will be clear from this rapid survey, which has attempted to summarize some of the substance of the remainder of this volume, that Parts Two to Four, seen as a whole, touch upon practically the whole range of factors which should enter into an exploration of alternative educational futures. However, it is only in Part Three that a first attempt is made to put this discussion in a policy-making context, although the authors touch only lightly on problems of decision-making. In this respect the bulk of their discussion does not yet go very much beyond the FGEP framework.

In Chapter II of this Part a general and tentative outline is presented of the CERI approach to alternative educational futures, placing it explicitly in the policy-planning context.

II

ALTERNATIVE EDUCATIONAL FUTURES IN THE CONTEXT OF SECOND GENERATION EDUCATIONAL PLANNING (SGEP)

As has been set out in the introduction to Background Report No. 9, Vol. VI,* on: "The Role of Analysis in Educational Planning" prepared for the Conference on Policies for Educational Growth, there is a growing awareness that many systems and activities have multiple objectives. More precise definitions of these objectives, and of the priorities between them, are required: furthermore, information is needed about the extent to which various strategies can contribute to reaching these different objectives, and about the resource requirements, implementation difficulties and side-effects of these strategies. There is, therefore, a need for an iterative procedure in the planning process. Issues and problems have to be foreseen and dealt with at an early stage, and reforms and plans need continuous revision. The inescapable uncertainty about the future has to be taken into account explicitly in the planning process. A change of this kind in the planning approach implies an analysis of the planning and decision-making processes themselves. Such an analysis is required to investigate what changes are needed in the organisation procedures to enable planning performance to meet new requirements. The growing emphasis on long-range planning, and the increasing complexity of social as well as other systems, led to a new term, "systems analysis", which can be described as: an enquiry to aid decision-makers to choose a course of action by:

- systematically investigating and analysing their objectives;
- comparing (quantitatively where possible) the costs, effectiveness and side-effects associated with the alternative policies or strategies for achieving them;

* See Series of supporting studies prepared by the OECD Secretariat for the Conference on Policies for Educational Growth (OECD Document).

- formulating additional alternatives if those examined are found wanting, or revising the original goal priorities.

Whereas in FGEP (first generation educational planning) the link between "planning" on the one hand and decision-taking on the other, has not always been clear, one of the main characteristics of second generation educational planning (SGEP) is the need for a much closer integration of planning in the whole decision-making process. SGEP should really become a rationalization technique for educational policy. This presupposes that there exists such a thing as "educational policy". This in turn is the reason for including goal definition and goal analysis, through the exploration of alternative educational futures, as an indispensable part of educational policy formulation and hence of SGEP.

A. GOAL DEFINITION AND GOAL ANALYSIS

The work carried out to date under the present CERI activity on educational growth and educational opportunity (see Chapter III of this Part), makes it clear that a much more explicit and operational set of educational goals needs elaboration. In other words, the goal structures must be identified, operationalised and, whenever necessary, revised. This means determining criteria and priorities, and then defining the global strategies necessary to reach them, with the resources and other implications spelt out.

It is proposed that an attempt be made to develop procedures and techniques in order to define and operationalise goals in Member countries, taking into full consideration differences in national objectives, the socio-political organisation and historical circumstances. Such a goal-definition activity will have to be carried out in co-operation with educational leaders from a number of Member countries, including policy-makers and representatives of the educational community and society at large. The goal structures will, of course, essentially be determined by the type of society which those who set the goals want to create. It is likely that the need to achieve greater equality of educational opportunity in education, and the contribution of knowledge and skills to society for the general improvement of well-being, will be important ingredients of any goal structure.

The aim of this part of the analysis is to formulate alternative goal structures and to translate them into operational targets which guarantee that the planned quantitative growth and qualitative improvement of education remain within the limits set by the available intellectual and material resources. Within the context of such an endeavour, Member countries should be able to undertake, in co-operation with CERI if so desired, a self-evaluation of their targets and programmes with respect to the alternative goal structures proposed.

B. SECOND GENERATION EDUCATIONAL PLANNING

It must be emphasized that it would be wrong to consider goal definition and goal analysis as the central activity. The central point of attention should be towards giving guidelines for educational policy-planning formulation. As was implied earlier, goal definition through the alternative educational futures approach is an essential part of such policy-planning formulation, but only a part. If one looks upon the speculation about educational futures as an integral part of SGEP, two very practical problems must be tackled: i) the integration of the work on alternative educational futures with that on alternative societal futures; and ii) an organisational set-up of the planning process which among others stands good chances of elaborating, and reaching a consensus about, alternative educational strategies to reach defined targets in line with the selected goal structure.

The first problem raises the issue of the interrelationships between the various bodies working on the future states of society. A desirable situation would probably be to have an Institute for the Future, dealing - in close collaboration with the various "specialized" agencies - with the different sectoral futures as an integral part of societal futures. There will have to be a continuous interaction between the sectoral policy-planning bodies and the proposed Institute for the Future: the educational goal structures, for example, would be developed within an environment of "mutual understanding" between the Institute and the educational policy-planning authorities.

As to the second problem, it will be recalled that in Chapter I, the question was raised whether different versions of the future held by different groups in the society would result in irreconcilable and disruptive conflicts about educational goals and strategies. Among others, for this reason it becomes, therefore, important that the organisational characteristics of the planning process change in order to secure:

- a high degree of participation of persons and groups who are directly concerned with educational policy-planning;
- a high degree of transparency: this has less to do with who participates in the planning and decision-making process than with what procedure is followed.

Moreover, and as already mentioned several times in this Chapter, it is becoming vital to secure also:

- permanent innovation, which requires built-in considerations of the possibilities for change rather than control through routine decisions;

- comprehensiveness of the planning which must not only take into account the "quantitative" domain, but must also deal with psychological, pedagogical and cultural domains;
- a high degree of flexibility of the policy-planning process, for example by adopting rolling plans. Feedback mechanisms must be built in for continuous evaluation purposes.

In concluding this Chapter, and drawing the various bits and pieces together, it may be useful to summarize the main characteristics of SGEP which differentiate this policy-planning approach from FGEP:

i) a closer integration of planning in the decision-making process;

ii) a more comprehensive and futurologic approach leading up to clear educational policy formulations;

iii) maximum flexibility;

iv) coverage of the planning process beyond the "quantitative" domain;

v) more transparency in the planning and decision-making process;

vi) more stress on continuous evaluation of plans and programmes; more attention will need to be paid to feedback mechanisms. There will, therefore, be a growing need for applications of adaptive control theory to educational policy-planning problems.

III

GOAL DEFINITION AND ALTERNATIVE EDUCATIONAL STRATEGIES: AN EXAMPLE OF A POSSIBLE APPROACH

The present CERI programme on educational growth and educational opportunity is concerned, among others, with operationalising the goal of equal educational opportunity. It may be useful to say a few words about the present stage of this project in order to illustrate some of the difficulties one confronts when it comes to defining and operationalising educational goals.

As documented in several of the background reports prepared for the Conference on Policies for Educational Growth, the broad goal which states that educational policy is to "provide adequate education for all individuals and groups to the highest levels they demand", has resulted in a huge expansion of the secondary and tertiary levels of education and, therefore, in an important widening of educational opportunities. However, the evidence also shows that, while all social groups have benefited from the general increase in overall educational opportunity, social disparities in educational participation have not changed substantially during the past twenty years. Thus, the policy that consists of "following" individual demand for education can be thought of as a relatively "passive" approach toward the provision of equal educational opportunity, based on a conception of equal opportunity by society as that of making available a socially "unbiased" set of educational facilities. It has only recently become very clear that by giving people - from very different social backgrounds and therefore with widely different characteristics - access to the same schools and the same curricula (i. e. the same educational opportunity), the results in terms of educational achievement vary substantially and systematically according to social groups. In short, it has become obvious that equality of inputs (in terms of school and teacher variables) does not result in equality of outputs (in terms of educational achievement). This is so because of the initial gap in achievement between social groups and because of the subsequent differences in learning

rates caused by i) the above-mentioned differences in characteristics of the population before entering school; and ii) because of the small independent effect which school and teacher variables have - in the present school systems - to counterbalance these social background differences. To overcome background disadvantages the goal of educational policy will have to broaden the equal opportunity concept to include also equal achievement* and this can only be attained by introducing a much more active or interventionist approach toward the provision of equal educational opportunity. This brief survey, and the evidence on which it is based, is indicative of the fact that until now the declared policy objective of equal educational opportunity has often been formulated as a statement, but rarely elaborated explicitly (what exactly does one mean when talking about equal opportunity) nor translated into operational terms (how much can one achieve and over what period of time).

But further questions have to be asked. Many objectives pursued by educational policy are not end-objectives, but serve as inputs to attain wider societal objectives. This clearly applies to equal educational opportunity as well. Does equal educational opportunity result in equal occupational opportunity, or in equal personal income opportunity? If not, what other wider societal objectives are being served by realizing the equal educational opportunity goal? Or, conversely, what wider societal implications does the total or partial realization of equal educational opportunity have?

One of the strongest common assumptions in most societies is that education is the key to upward mobility. This common belief in the efficacy of education as a means for individual and social advancement has led to a growing social consensus that education should be used as an instrument for social change. But recent empirical evidence - some of that presented to the Conference on Policies for Educational Growth - points to fundamental ambiguities and doubts about the independent effect of present educational systems to generate societal changes.

Operationalising the goal of equal educational opportunity requires an active educational policy formulation which in turn necessitates an answer to the following twin questions: i) how far can one go, within defined economic, social, cultural and financial constraints, in achieving

* For a discussion on this point, see James S. Coleman, "The Concept of Equality of Educational Opportunity", in Equal Educational Opportunity, Harvard Educational Review, Harvard University Press, 1969. It is important to bear in mind Coleman's point that equality of output "does not imply that all students' achievements come to be identical, but only that the averages for two population groups that begin at different levels come to be identical. The diversity of individual scores could be as great, or greater than, the diversity at grade 1." (p. 23).

equality of educational opportunity; and ii) if one would like to go further, what would this mean in terms of changes required in the economic and social structure of society?

The answer to such questions implies analysing the interrelationships between three sets of variables: i) characteristics of the population before they enter school, i.e. family and social environment variables; ii) school and teacher variables; and iii) the variables describing what happens to the individuals once they have left the educational system. To put it in a nutshell, the analytical approach consists of an examination of the interrelationships between what happens to the individual before, during and after school.

At the conceptual level one can distinguish three approaches to an explanatory analysis of social disparities in educational participation: they may be labelled the cultural theory, the educational theory, and the structural theory. The first puts relatively more emphasis on the importance of the characteristics of the population before entering the educational system, such as the family pedagogical environment, i.e. the attitude towards education, the language spoken in the home and by the peer group, the education of the parents, etc. The second puts more emphasis on the school and teacher variables and could also be called the optimistic theory, because it believes that the influence of the school could be increased in relation to that of the non-school external factors on which the other two theories concentrate. Lastly, the structural theory lays emphasis on economic and social constraints and broadens the concept of the effects of education to include, for instance, the effects of education on jobs and on income.

Each of these three approaches is clearly a partial one, and a general theory would have to embrace them all. But there is little doubt that recent strategies aimed at equalizing educational opportunities have been inspired mainly by the educational theory. In this respect, four broad educational strategies can be distinguished*: special pre-school training programmes; compensatory education at the primary level; comprehensive education at the secondary level; recurrent education at the post-compulsory level. These four strategies, in terms of the three theoretical approaches just mentioned, are heavily biased towards the educational theory, though in varying degrees. The comprehensive school is, of course, the purest illustration of this theory. Pre-school training and compensatory education at the primary level are predominantly concerned with school and teacher variables, though the more dynamic of these programmes touch upon the cultural

* These strategies, as well as other points mentioned in this chapter, are discussed in more detail in a CERI publication, Equal Educational Opportunity: a Statement of the Problem - with Special Reference to Recurrent Education.

theory as well, inasfar as they pay attention to language and to the family pedagogical environment. Recurrent education, on the other hand, touches upon the structural theory inasfar as it aims at giving the individual better possibilities in his career as well as enriching his leisure.

It is through a conceptual and analytical approach, described in very general terms above, that answers to the twin question could be found. In any such investigation, particular stress must be put on possible complementarities between the various educational strategies, instead of dealing with them in isolation as has happened too frequently up till now. Such an analysis has not been undertaken anywhere as yet.

In summary, it has been argued in this chapter that i) the equal educational opportunity goal has never been defined properly for policy purposes; and ii) no far-reaching analysis has been undertaken concerning the complementarities between strategies to reach this goal; in other words, bad or vague goal definition and practically no operationalisation of this goal. A third point which is implied in the two others is that the interrelationship between the equal educational opportunity goal and the other educational and social objectives is not clear. The last point leads straight back to the discussion presented in Chapter II of this Part related to the definition and operationalisation of a whole range of goals. The discussion in the present Chapter, taking as an example one specific goal, has shown the advantage of undertaking such a specific analysis in the broader framework of examining alternative goal structures essential for clear educational policy formulation.

Part Two

THE PURPOSES OF FUTUROLOGIC STUDIES IN EDUCATION

by

Torsten Husén

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INTRODUCTORY REMARKS

The young people we now have in our schools will be entering the most productive, and publicly the most influential, period of their lives in 20 to 30 years, i. e. towards the end of this century. The objectives of the education that the school gives them, and the content of the instruction they are subject to, must obviously consider that it is not today's society - much less yesterday's - that these youngsters will take charge of, but rather a society which lies only a few paltry (but oh so important) decades ahead of us, when we reflect upon the process of change that has swept across this society at an accelerated rate, especially since 1945. Accordingly, contemporary educational planning must allow for the effects it is likely to have on the society - not to mention the world - that we are going to have 20-30 years from now. Not even that will suffice, however. Let me take the following illustration. The Swedish Riksdag passed legislation on a new system of teacher training in 1969. * These teachers are expected to be active professionally for an average 35-45 years to come. They will be teaching young people whose own productive lives will run for about 50 years. This is by way of saying that the teacher-training decisions taken during the 1960's will have repercussions up to the mid-21st century.

The foregoing remarks should suffice to justify futurologic studies in education of the type which seek to define the consequences of present-day planning and decisions for tomorrow's school. Could it be that the

* Marklund, S. and Söderberg, P., The Swedish Comprehensive School, London, Longmans, Green and Co., 1967.

Husén, T. and Boalt, G., Educational Research and Educational Change, The Case of Sweden, New York, Wiley, 1968.

Marklund, S., "Educational Reform and Research in Sweden", Educational Research, 9 : 1, 1966, pp. 16-21.

Marklund, S., "Training Teachers for the Schools of Today", International Review of Education, 14, 1968, pp. 432-445.

schools of three decades hence will bear little if any resemblance to the time-honoured type we know today? In the present century, at any rate, "education" and "school" have increasingly come to be regarded as synonymous concepts. In Sweden, the establishment of a compulsory elementary school was accompanied by the formal abolition of the guild system, within whose institutional framework training for the handicrafts had taken place. The apprenticeship system for training in the trades continued to linger on for some time. But during the course of the past century, education has increasingly come to be carried on in the institutional forms that regular schooling has established with grades, teacher-led class instruction, tests, marks and examinations. From time immemorial, moreover, we have learned to regard education as a matter exclusively associated with the years of our youth. In other words, the basic and applied knowledge and skills needed to make our way in the world are supposed to be acquired early in life. But already at the beginning of this century the free and voluntary adult education programmes sponsored by the various people's movements developed considerably, and to a large extent, at least in Scandinavia, these were detached from the institutional school system. The non-formal voluntary system by means of study circles and evening classes long focused on giving a basic general education, on imparting certain skills in, for example, the native language and the society-and-nature orientation that the great masses did not receive from the elementary public education, which after all was rather meagre. In other words, no question of training for careers or of imparting saleable skills was involved. But during the past decade we have been witnessing, at least in Sweden, the onsurge of adult education which aims at bread-and-butter goals. Both the traditional programmes of adult education and, to some extent, the vocationally-oriented system of adult education, have operated outside the traditional school framework. As regards the voluntary adult education programmes, one can discern a deliberate effort to move away from the traditional forms and towards the goals they serve. *

Recent developments in adult education have opened our eyes to the fact that education takes in a great deal more than mere formal schooling in the traditional sense. The young people attending school today belong to the generation that has been exposed to television from pre-school years and that will be exposed, as transmission time increases, just as much to what comes out of the magical cathode ray tube as to what comes out of a teacher at his classroom desk. A moment's reflection tells us that the school's sphere of influence has also diminished in this respect. In the society that we have been entering for some time, education is in the process of becoming a

* Eide, K., Framtidens krav til utdanningssystemet, (Mimeogr.).

lifelong concern for the great majority of people, and thus more than a matter to which one dedicates the years of childhood and youth. In that connection the school as an institution - and under forms that are changing drastically - will answer for only certain limited educational functions.

These sketchy indications should suffice to provide a general background to my principal topic, namely the tasks and methods of futurologic studies and the visions of education that may reasonably be contemplated for the coming turn of the century.

I

THREE CARDINAL PURPOSES FOR FUTUROLOGY

What are the cardinal purposes in education that can be imagined for futurology?* As far as I can see, three lines of development suggest themselves.

a) Research can be confined to identifying the future consequences of contemporary planning and policy decisions relating to school organisation, construction, curricula, teaching aids and teacher training. The layout given to a new school plant implies certain definite notions as to how work will be carried on in the projected building for many decades to come. A structure with bearing walls, and divided up into classrooms of a certain size, presupposes that these rooms will have a specified number of pupils - regarded as normal for so-called class instruction in today's situation - who are going to imbibe wisdom that is mainly imparted by specially trained teachers. Planning of this kind more or less rules out certain alternatives as to the school's work practices, alternatives which assume in common that practices will vary and that pupils will become more active. In any event, such planning has the effect of making these alternatives less likely to materialize.

The example just cited illustrates how important it is to clarify the long-range implications of today's school decisions. It also illustrates a vital thesis: futurologists do not aspire - or should not aspire - to explain what is supposed to happen, but what can happen. In his book Dialog i det öppna (Dialogue in the Open), the Swedish writer Sven Fagerberg has a section which he calls "The Soothsayers", especially

* The present paper was drafted before I had an opportunity to read the report prepared for CERI by W. Ziegler, and presented as Part Three of this publication.

inspired by an issue about the year 2000 that the American periodical, Daedalus, put out in the summer of 1967. * This issue was given over to presenting the results of deliberations made by a committee appointed by the US National Academy of Science. Fagerberg has this to say: "Forecasts have ... a great importance; they compel us to analyse the here and now and to try to understand what is happening at this moment. But they can never tell us what is going to happen". In this way investigation into the future can also help to create that future.

As long as the investigator sticks to analysing the import and consequences of contemporary planning and policy decisions, he stands on pr tty solid ground and does not have to rely too much on what he sees n the crystal ball - or whatever metaphor one wishes to use to characterize the doings of futurologists. But his task immediately becomes more difficult if he takes a step further and extrapolates the statistical trends that are now observable. And he will be tackling a really formidable task if he goes yet one more step to identify those general development patterns and value trends that will dominate society a quarter-century hence. I shall have something more to say about these riskier ventures presently. But first some more viewpoints about the task of making clear the nature of the ultimate commitment that follows from decisions already taken or implemented.

I assume that all parties endorse the rational principle - by paying lip service, if nothing else - that educational planning, as well as social planning in general, in our changeable society ought to aim at maximum flexibility, the object being to keep open as many acceptable future alternatives as possible. That is a demand which ought to be imposed on those responsible for planning physical facilities and building design guiding school construction. Or to put this principle the other way round, contemporary planning should rule out as few alternatives as possible. This means that the futurologist ought to study present-day policy decision-making from two angles.

First, do today's planning and political decisions harmonize with the general objectives of public policy that have been adopted for the long run? Second, what future alternatives have been excised by today's actions? When the Swedish Authorities decided, a few decades ago, to go in radically for centralizing schools in urban areas and shutting down the majority of the small rural schools, they were motivated by the prospect of certain administrative benefits, and perhaps economic ones as well: since large-scale educational operation would be more

* Bell, D. (Ed.), "Toward the Year 2000", Work in Progress, Daedalus, 96, 1967, pp. 639-1226.

advantageous than continuing with the little red schoolhouse, the latter ought to be closed down. However, the transportation of young people to large urban schools, which followed from the closures, combined with the abandonment of farms to generate a vast depopulation of the countryside. In a recent study, Dr. Sixten Marklund* has shown that small schools offering middle-department courses (i.e. grades 4-6) do not perform worse than the large schools, indicating that the pure educational advantages of doing away with all the many small rural schools at the lower and middle levels have been of dubious value. On top of that, the social and economic impact on sparsely populated areas has been highly negative.

Politicians are easily tempted to look for short-term solutions to current problems. Which is perhaps understandable considering that they are reminded of their mortality at fairly short intervals, i.e. at the regularly recurring elections. Hence they readily go astray when confronted with situations where they have to choose between that which imperils themselves in the short run and that which imperils the voters, i.e. the society, in the long run.

The administrators, especially if they work in a strongly bureaucratic setting, risk (for partially different reasons) losing sight not only of the future, but of the basic meaning of the tasks they have in hand at the moment. Current worries, the day-to-day routine, often assume overwhelming proportions, or are perceived to be so overwhelming that no time is left for thinking in terms of the "long pull". Now it happens to be the very essence of bureaucracy not only to build empires but also to become so engrossed in the formal and technical perfection of a present preoccupation that questioning the real meaning of what one is doing seldom, if ever, comes to mind. A brilliant and illuminating document on this point is to be found in Grisjakten (The Pig Hunt), the book written by P. C. Jersild. Secretary Siljeberg is so absorbed with the task his boss in the Ministry has assigned to him - to exterminate all pigs in Sweden as efficiently as possible (starting with the experimental district of the island of Gothland) - that he never stops to ask what purpose all this technical perfection is really supposed to serve.

There is something else which impedes the bureaucratic-political establishment from inquiring into the future consequences of its present actions. During the past five or six years we have seen how protests - voiced not least by today's youth - have become increasingly clamorous against the imputed penchant of authorities to plan and decide

* Marklund, S., "School Organisation, School Location and Student Achievement", International Review of Education, 15, 1969, pp. 295-320.

over the head of the common man*. It is contended, not without reason, that an inner circle of technicians and experts, political experts included, steamroller decisions on city planning, roadbuilding, school construction and water impounding which fly in the face of what a "growing grass-roots" opinion perceives to be desirable long-range objectives. One example, now very much the object of controversy, is the extent to which private automobiles should be allowed to circulate freely in downtown areas. A great deal of prestige readily tends to hang on questions of this kind. That which was planned a long time ago, when the conditions were different, builds up such powerful convictions and momentum among the bureaucrats that it rolls on with juggernaut force. Experts and persons in authority who have long worked on and sweated over the issues thereby feel they have become privy to a higher insight, and not seldom they put on a stiff and even supercilious tone towards the protesters. In other words, they "know better".

b) The futurologist can try to determine certain trends expressed in numerical terms, such as school enrolments, development of costs and use of teaching aids, and then extrapolate these trends, for example find out in which direction the curves are pointing. This kind of peering into the future, which amounts to drawing upon demographic data to compute the need for school plants and their sizes, has become routine nowadays in both the local and central school planning that is pursued in most quarters. Yet it was not more than a few decades ago that no one in Scandinavia even seemed to think it possible to predict with great accuracy the number of children that would be starting school six or seven years after a certain cohort was born.

Even so, attempts to extrapolate trend curves can have their parlous sides. An example is the estimate of the supply and/or demand for special subject teachers that was made by the 1955 Commission of Inquiry into the Swedish Universities. When the Commission published its special report in 1958**, it went on record as saying that secondary school teachers would already be in surplus by the early 1960's, and that the surplus would grow as the decade progressed. The analyses were based on the reported number of secondary school-leavers having completed a gymnasium programme and passed the studentexamen, together with the number of matriculants and degree-takers at the faculties of arts and sciences up to the mid-1950's. It could be established that the number of leavers from the pre-university school by and

* Keniston, K., The Uncommitted: Alienated Youth in American Society, New York, Harcourt, Brace and World, 1960. Ibid. Young Radicals: Notes on Committed Youth, New York: Harcourt, Brace and World, 1968.

** Lärarbrist och lärareöverskott, (Shortage and Surplus of Teachers), Statens offentliga utredningar 1958: 21, Stockholm, Government Printing Office, 1958.

large had increased linearly from 1940 to 1955. The assumption was that this would continue till the mid-1960's, at which point the curve would level off, since the increase could not very well be expected to go as in the past. Further, it was assumed that first-year enrolments in the arts and sciences faculties would not mount substantially. Lastly, the experiences gained from the pilot programme with the nine-year comprehensive school were drawn upon for that proportion of pupils in the upper department (grades 7-9) who had made so-called academic options, which was largely identifiable with the percentage of an age group who had elected to study two foreign languages. It did not take more than a few years for the actual course of events to confute all these assumptions. The curve for secondary school-leavers turned out to increase not linearly but exponentially, i. e. at a geometric rate. Not only that, but the subsequent course of events has been described as an "educational explosion", and rightly so. By the mid-1960's, when the incidence of studentexamen was supposed to have levelled off, the acceleration was greater than ever. Far from stagnating, new admissions to the arts and science faculties increased sharply. The number of pupils with so-called academic choices grew apace, especially after the basic school reform of 1962, so that the proportion of pupils making such choices rose to more than two-thirds from about one-third during the 1950's. With the introduction of a universal basic school in 1962, followed by reforms of secondary education in 1964, the educational opportunities were expanded far beyond the prospects envisaged in 1958, and all the earlier forecasts were shattered into the bargain. The predicted surplus of Swedish and modern language teachers in the early 1960's never occurred. As for the liberal arts graduates, the much-talked-about surplus turned out to be a hampering shortage, which for a time even exceeded the shortage of mathematics and science teachers in certain parts of the country. *

I have not picked out this example in order to sound wise after the event, but because I feel a generous helping of imagination is called for when one tries to extrapolate development trends. In this particular case the acceleration tendencies which already existed ought to have given cause to think about the role of education both as investment and consumption, and hence about its attractiveness as well. If such reflections had been allowed to govern, the forecasts could have been corrected. It should also have been possible to predict the short-range effects of broadened educational opportunities.

c) Social and political values are legitimate objects of research for the futurologist. For example, he can study how a pluralistic and

* Skolans försörjning med lärare, (Providing teachers for the schools), Statens offentliga utredningar 1964: 44, Stockholm: Government Printing Office, 1964.

a monolithic society respectively function in educational terms. However, the futurologist cannot avoid being drawn into the debate about what kind of future society is being sought. In so doing he can indirectly help to create values and gain their wider adoption. The appearance of tomorrow's society does not follow in any clear-cut and mechanical way from the scientific and technological potentials we have today, and probably not from the ones at our command tomorrow, either. The crux is if and how we intend to use these potentials. That is determined by the social preferences, i. e. by the prevailing values. Medical science can give us formulas on leading a way of life that will keep us in good shape physically and mentally. But none the less we put ourselves in situations, both on and off the job, that induce stress and break us down physically and mentally. We allow the waste products of technology to spoil our environment to the stage where it poses health hazards not only for coming generations, but also for ourselves.

Will the values that fix priorities and preferences look essentially different two or three decades from now? Will science and technology be more greatly harnessed towards creating a better and healthier environment? And what about notions as to what constitutes the "good life", the life worth living? The Protestant ethic (pace Max Weber), under which everyone was supposed to stick to his last, and which suffused the life ideal of a large part of my generation in the Western world (and in the socialistic countries, too, for that matter) may be superseded by another ethic. As long as the "sweat-it-out" ethic dominates, the awarding of marks on the basis of individual performances in competition will continue to dominate in our schools. The curricula can then talk as piously as they wish about group work, cooperation, consideration and social maturity.

Many signs suggest that here, as in so many other areas, the revolt of youth is touching off what Nietzsche called a "re-appraisal of all values"*. Thus we have a growing younger generation which opposes the toiling philosophy of its elders and which no longer wants to give top priority to traditional status-promoting achievements in school and the job world. Obviously, such a reappraisal cannot help but strongly influence the school's assessment of the progress its pupils are making.

Hence one of the cardinal tasks for futurology will be to venture predictions about how priorities are going to look in another few decades. What will then be considered essential and inessential? What will one be living for? All of us have personal experiences of how the value accents can shift in a relatively short time. My own generation was not

* See Keniston, op. cit.

confronted with the problems that relate to the atomic bomb and the developing countries. We rested, if not securely then ingenuously, in the assurance that the Western way of life was superior and our technical civilization unbeatable. There was no talk of technology being able to harm us in any way; it could only make life richer, better, and elevate us to higher and higher standards of living.

I do not propose here to elaborate on how one undertakes to find out about tomorrow's value priorities. If we look at what has happened to change social and political values during the past century, we often detect certain advance signals of what is in store where needs and values are concerned. Such a study will disclose that events constantly thrust up avant-gardists, many of them leading writers, whose ideas and reactions portend the coming shape of dominant values. These signals that point ahead to the future are to be found among writers, artists and intellectuals, but even more so among articulate young people. *

These young people will take over the society of tomorrow. By investigating what they hold to be questions of vital importance, we can arrive at a broader understanding not only of what they accord top priority as young people, but also of what they may be expected to consider most essential in their adult years. The Swedish National Board of Education recently published an attitude survey whose main purpose was to provide source data for instruction in religion. ** A questionnaire administered to 1,300 pupils in grade 9 showed that racial problems, international problems and questions of human dignity headed the list of philosophical and ethical topics which concerned pupils at the age of 16.

The American investigators who concern themselves with educational policy research have made extremely interesting attempts to map out how vital questions are perceived by more articulate and "deviant" youth, respectively. *** A group of high school students, all of them engaged in putting out "underground" school newspapers, were invited to a conference, where they gave uninhibited expression to their views on the older generation and the existing society, and portrayed the kind of society they would like to have in the future. Another study included the "hippies" of San Francisco. A third tied into an

* Pilot Policy Research Center, U.S. Office of Education, A predictive Study: Attitudes and Values of Future Decision-Makers, Progress Report, Vol. 3, Western Behavioural Sciences Institute, La Jolly, California, 1967.

** Tonåringen och livsfrågorna, (The teenager and the basic problems of life), Stockholm: Skolöverstyrelsen, 1969.

*** Pilot Policy Research Center, U.S. Office of Education, op. cit. See also Part Three of the present volume.

ongoing international study in 25 countries which seeks to elucidate the value orientations, attitudes and political opinions of university undergraduates.

When I read the analysis of the taped proceedings from the conference attended by the young high school editors, I could not escape the reflection that young people now seem to be reacting in the same way more or less universally. After all, these are individuals who experience the world and its problems more directly and tangibly, not least through the medium of television, than earlier generations, and for whom there exist quite different means than in the past for the common sharing of experience.

According to these youngsters, the school is out of touch with the important things that are happening in the world and is also trying to protect the pupils against unpleasant realities. They consider themselves "manipulated", with the school acting as a propaganda machine. One of them said: "The school system has become an efficient factory in which we are the raw material, who under the pressure of the marking system are turned into automatons and conformists for sale to the highest bidders in the business world". Another student said: "What I want more than anything else in the school is interaction between ideas and feelings, and not just neutral, gray knowledge. I want us to get accustomed to people trying to convince us about things".

I should like to comment briefly on both these quotations, since I picked them out in order to illustrate a favourite idea of mine. The day cannot be far off when we stop adhering to the illusion that textbooks or teaching aids in general are supposed to present "objective" knowledge. * Efforts in that direction make the books so neuter and dull that they cannot possibly stimulate the motivation of pupils. The latter-day debates in Sweden, for instance, about the tacit value assumptions in the textbooks have shown us that we must try another approach. Quite simply, this means that pupils must be put in touch with the debate and clash of opinions in the larger society outside the school: in other words, that the school systematically expose its pupils to these views and train them in their discussion. We shall be living in a society where intentions are becoming more important than opinions.

Futurology, not least that concerned with development trends under alternative B, confronts this crucial question: What trends shall be selected for extrapolation? Some of these trends will be decisively influenced by the policy that is based on future assessments of priorities. Other trends will probably remain more stable. It therefore becomes

* Läroplan för gymnasiet (Gymnasium curriculum), Stockholm: Skolöverstyrelsen, SO-förlaget, 1965, pp. 197, 203, 229 et seq.

essential to design "alternative futures", all according to the congeries of assumptions one makes. *

As for the type of society represented by the industrial countries, it is likely that several of these trends will be reinforced in the future. Just how they will develop mathematically, i. e. linearly or exponentially, will depend inter alia on the future's value preferences.

We cannot devise sensible future alternatives unless two fundamental conditions are in hand: i) we regard education as an integrated system, which means we do not confine ourselves to the school-type subsystems in the conventional sense; and ii) we view the educational system in its social, economic and political context. What this boils down to is an attempt to design "comprehensive" future alternatives. **

The factors which characterize the educational system as such are here called endogenous, whereas those influences which derive from the total social context are called exogenous. Accordingly, efforts to design alternative futures must embrace certain assumptions (more or less correlated with one another) concerning both kinds of factors, on the one hand assumptions about the society at large and on the other about the educational system as such.

* Helmer, O. et al., Social Technology, New York, Basic Books, 1966.
** For an elaboration of this point, see Part Three of the present document.

II

ASSUMPTIONS ABOUT THE SOCIETY AT LARGE

Economic growth will offer opportunities for increased consumption in different respects (better material standards, more leisure, more education and culture).

The process of change will accelerate in essential respects, for example concerning the manufacture of goods and the provision of services.

Greater international exposure is to be expected by virtue of mass media and travel.

An accelerating flow of information will have to be coped with both on the production side (scientific research) and on the distribution side (mass media, computer technology).

Gainful employment as a means of obtaining life's necessities will become increasingly unimportant. An overabundance of goods and services in the highly industrialized countries will be available to the masses.

Increased influence of experts, with a tendency towards meritocracy.

Increased pluralism, at least for a transitional period, as regards life outlooks and values.

It will be increasingly difficult to maintain a balance between the ecological system and technology (owing to pollution and ravages of nature).

These assumptions obviously present varying degrees of plausibility. The first four appear to intercorrelate highly and their current manifestations are so patent that they should be considered very plausible. By contrast, the four last assumptions are more debatable, one reason being that contemporary values will supposedly carry over, by and large, to the future, for example that education will continue to be a strong status-promoting factor, or that technological advances which make for greater benefits now are bought at the price of tomorrow's devastation. To my mind, the most debatable assumption is the one about increased pluralism.

III

GENERAL ASSUMPTIONS ABOUT THE EDUCATIONAL SYSTEM

Now, what assumptions can we make about the future educational system? Before going into details, I should like to single out what ought to be regarded as the most important overlapping conditions for tomorrow's learning society, where it will become increasingly urgent to work out "systems solutions" and not merely short-ranging partial solutions. * Three such conditions make it particularly acute to formulate systems solutions, namely i) the enrolment explosion, the increased proportions of more and more cohorts who are going in for full-time education; ii) the knowledge explosion, which aggravates the problem of processing, storing and communicating information; and iii) the need to individualize instruction, i. e. to enable every individual to learn at the pace and with the breadth and depth that suits him best, in short the demand for greater specificity in the process of imparting knowledge and skills. Individualization in our schools will soon become a necessity, not a luxury as heretofore.

Now, what can be specifically assumed about the future educational system that looks more or less plausible?

a) Education is going to be a lifelong process. The type of school associated with youth will not provide the fare on which one can subsist for all time.

b) Education will not have clearly defined "cutoffs" as in the past, beginning with an entrance examination and ending with a near-dramatic climax, such as a secondary school examination or a university degree. It will become more of a

* Coombs, Ph. H., The World Educational Crisis: A Systems Analysis, New York, Oxford University Press, 1968.

continuous process, both as regards its effluxion over time and its embedment in the other functions of life.

c) Education will take on a more informal character as it becomes accessible to more and more individuals. In addition to "learning centres", facilities will be provided for learning at home and at the workplace, for example by the installation of terminals.

d) Formal education of the type that used to take place in conventional school plants will, as it becomes accessible to more and more individuals, also become more meaningful and relevant in terms of its applications.

e) To an ever-increasing extent, the educational system will become dependent on large supporting organisations or supporting systems. Agencies of this kind, whether they be public or private, are needed to produce systems of teaching aids, systems of information processing, and multi-media instructional materials. The information systems arrived at will consist of carefully tried-and-tested storage and retrieval components. One of the problems involved will be to create "compatibility" between medium and receiver.

For me it stood out as fairly self-evident more than ten years ago that the basic school of the future would have to concentrate on inculcating certain fundamental learning skills. It would have to impart skills and knowledge for two purposes: to train for general citizenship and to qualify the young for the initial training needed for certain occupations. Further, it would have to prepare the young for changing careers, for instance by providing a basic repertoire of skills as well as attitudes of flexibility and a taste for more - a motivation for going on with education.

In the light of these remarks, the following objectives strike me as paramount. Some of them may be regarded as controversial because they proceed from values which also form part and parcel of political judgments.

It will be increasingly important for democracy to create the broadest possible frame of reference for knowledge, skills and attitudes. The production and uses of information will become more and more specialized. This will readily lead to rule by specialists and experts, which brings formalism and alienation in its train. At the same time that scientific research and high-level education become increasingly important to society, the merits attached to them increase concomitantly. We seem to be headed towards a meritocracy. Among other things, a common frame of reference means making initial provision

for a common liberal schooling to the greatest extent, with vocationally oriented specialization to follow much later. The development of communications skills should be so greatly emphasized that the maximum number of citizens will be enabled to speak the same language and hence understand one another.

Basic schooling ought to be of the kind that lays the groundwork for re-educability, for instance by providing what was referred to above as an adequate basic repertoire of skills and the ability to assimilate further knowledge.

The school ought to instill a receptivity to change, in other words a flexible attitude conducive to a willingness to go ahead both with general education and vocational training. It should get across a realization that the whole of life will be one long continuation school.

The school must prepare its pupils to live in a society of pluralistic values. Among other things, this means developing individual ability to pick and choose on the basis of certain criteria of authenticity.

Schooling for internationalism and the defeat of present-day educational provincialism is necessary if the world is going to survive.

It will be necessary to build up skills to deal with the ever more torrential flow of information unless we are to be swept away by it. Among these skills are computer language and technology.

Schooling for a life where gainful employment and recreation (in the old sense) will become less and less important, and where "work" will increasingly take on the character of self-realization.

Schooling for comprehension of the importance of maintaining the ecological system and technology in balance (involving the whole complex of problems which relate to such things as pollution of air, water and soil, and the wanton exploitation of natural resources).

Schooling in the ability to live as an independent individual, without necessarily having to rely on support in some primary group such as the family.

As I see it, a crucial aspect will be the extent to which education is going to function as a social mobility factor. Will it become increasingly important as a determinant of status (to judge from current tendencies)? Must we anticipate that the educational system, as regards its school-type subsystems, will remain pretty much institutionalised? If so, the outlook is for greater bureaucratisation in that the system will be run by an establishment of highly educated bureaucrats.

IV

SPECIFIC ASSUMPTIONS ABOUT EDUCATION

General education and vocational training will be more and more interwoven, simply because it will not be possible to predict what specific vocational attainments will be needed in the future. Paradoxically, general education (in the form of a "basic repertoire" of fundamental skills and knowledge) will be the best kind of vocational training. Basic schooling will constitute the foundation for re-educability.

Basic schooling will aim to accommodate the broadest possible common frame of reference of knowledge, skills and attitudes to cope with an era of ever-increasing specialization.

Skills (above all those which help in the assimilation of knowledge) will acquire greater importance at the expense of specific pieces of information. It will be impossible to uphold the traditional encyclopaedic ideal of education.

Instruction will become more and more individualized (for instance as more technical resources are brought into play). Teachers will be "replaceable" by technical aids to a limited extent only, since the central element of pedagogical activity is the personal contact between teacher and pupil. The teacher's duties will be to plan, support and evaluate the course of progress for the individual pupil.

The educative role in a wide sense of the school (as an institution) will decline in importance as increased leisure confers greater influence on the family and the peer groups. Mass media will extend their influence, and television especially so by virtue of lengthened transmission times and an increased number of channels.

Education in the formal schooling sense tends to become more expensive. Since more and more young people (and adults) are studying,

while annual costs per pupil are rising concurrently, it appears that the margin set by the overall allocation of resources will soon become so narrow that far-reaching rationalizations in order to achieve a more efficient utilization of resources will have to be put into effect. These may be expected to alter fundamental aspects of the school as an institution. That is likely to have radical repercussions on the erection of school buildings, since their design inevitably proceeds from assumptions about the uses of these buildings for several decades to come.

Now it may be asked: Isn't everything that is supposed to happen happening anyway, regardless of our hopes for the future and our efforts to enlist the help of research towards imbuing an air of rationality to the actual development process? Can futurology help to create the future? It might seem as though many technicians and politicians are acting - or failing to act - on the principle of "après moi le déluge". Fagerberg has very aptly affixed the label of "No-motion Messiah" to this mentality. I trust I am not indulging in lax quasi-philosophising when I say that the hallmark of contemporary man is his conviction that he can choose and shape his own future. The traditional run of humanity naturally sees itself as caught up in an unpremeditated and fated historical process, and considers its sole purpose on earth to continue, repeat and reproduce the life that earlier generations have lived. In spite of all, contemporary man is inspired by the optimistic conviction that he holds the future in his hands. * In spite of all, he entertains the hope that he will be able to write the "scenario" for his own life and for the lives of his descendants. Indeed, he goes as far as to hope that he will be able to stage the drama of life in accordance with the scenario's directions.

* Knowledge into Action: Improving the Nation's Use of the Social Sciences, Report of the Special Commission on the Social Sciences of the National Science Board, Washington, D.C.: U.S. Government Printing Office, 1969.

Part Three

AN APPROACH TO THE FUTURES-PERSPECTIVE IN AMERICAN EDUCATION

by

Warren Ziegler

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INTRODUCTION AND ABSTRACT*

In the Autumn of 1968 the Centre for Educational Research and Innovation of the Organisation for Economic Co-operation and Development asked the Educational Policy Research Center at Syracuse if it would undertake the preparation of a paper providing a synthesis of American attempts to define alternative educational futures. It was decided to separate this project into three related activities: first, to discuss what we mean and do when we think about alternative futures; second, to develop a synthesis of work underway in American education in terms of this futures-perspective: alternative goals it might seek, directions it might take, institutions it might develop, and methodologies

* An expression of appreciation must go to a number of persons who have reviewed and commented critically on this paper in draft form. Particular thanks are due to Dr. Thomas F. Green, Director of the Educational Policy Research Center at Syracuse and Professor of Education, Syracuse University, and to Professor James E. McClellan of Temple University, a member of the Center's Research Development Panel, for their thorough analysis of the underlying argument of the paper and cogent suggestions for revision. In addition, Professor Robert Wolfson of the Maxwell School of Citizenship and Public Affairs, Syracuse University and Associate Director of the Center, together with other members of the Center's staff undertook a thorough review of the draft and offered useful suggestions for revision.

Mr. Michael M. Marien, Research Associate at the Center, participated fully in the analysis out of which the paper emerged. His own research on the Education Complex forms a basic foundation for the review of educating systems in terms of the futures-perspective criteria. He is responsible for the bibliography on the futures literature in the United States (to be circulated separately).

Mr. W. Timothy Weaver, Research Associate at the Center, is responsible for the preparation of the bibliography on future cognition (to be circulated separately).

It would have been most difficult to conceive and write this paper except within the general framework and approach of the Educational Policy Research Center at Syracuse. The fundamental ideas of the paper receive continuous analysis, revision, and research application as a basic objective of the Center. Nevertheless, the judgments asserted and conclusions reached in this paper are the responsibility of its senior author. This paper does not represent official policy of the Center, nor of any of its sponsors.

it might employ; third, to attempt to identify and define the problems for educational planning which might be posed by injecting into that activity a consideration of alternative future possibilities.

These three tasks represent the organising criteria for the paper. But the analysis has been complicated by the diversity and sheer size of the American education complex and by our judgment that educational planning, particularly were it to assume a focus on longer-term and multi-dimensional possibilities for American education, would take its character from the educational polity and the policy-making function which it serves. Thus, we have been required to consider some problems in polity and policy formulation which also derive (we conjecture) from a consideration of future alternatives for American education.

It should be added that the request was not to provide a "review" of research, but to provide a synthesis of American efforts to define alternative educational futures. A review would resemble more closely an elaborate, critical and annotated bibliography. By a synthesis we understand an attempt to provide some organising criteria by means of which one can assess and arrange the enormous range of work underway. Such a task necessarily requires the construction of some point of view - hence the title of this paper: "An Approach to the Futures-Perspective in American Education".

In Section I we discuss what it means to think about the future. The future is unknowable and unpredictable. But we possess both expectations and intentions about it which, when fully exploited, comprise a series of conjectured alternative states of affairs. Short-term forecasting has become increasingly reliable; but the more remote perspective decreases the reliability of our assumptions about constancy in human affairs.

Next we discuss methods for thinking about alternative educational futures. One assumption is that education is not an isolated set of phenomena, independent of other sectors of the society. Futurescasting must attempt to speculate about changes in the technological and societal environment which might affect the future of education, at least as much as shifts in the demographic and economic factors of traditional concern to most educational planning. How might we judge the plausibility of alternative scenarios? Some criteria for plausibility are discussed. Two forecasting methods receive special attention: the Delphi method and the cross-impact matrix method. They appear to offer promise of systematically generating, explicating, and analysing a rich mixture of "data" on the future from which we can derive alternative scenarios. But these are forecasts, not predictions. We must still deal, in policy and planning, with the overriding problem of

uncertainty in human affairs, which is exacerbated by looking into the more remote future. The futures-perspective increases the necessity to choose among alternatives; but it also attempts to illuminate the consequences of these choices.

The Section III focuses on the domain of education in the United States about whose future we wish to speculate. A macrosystems approach is utilized. It enables us to identify the salient features and trends of the education complex. Two major trends are identified: the growth of the "learning force" and the development of a variety of educating institutions and activities outside of the traditional core of formal school systems. The macrosystem is further analysed by discussing the critical roles of suppliers and beneficiaries (including students) whose effect on possible new directions is important. The noncentralized, pluralistic, complex web of power and governance in American education forms the critical decision-making nexus within which futures-planning and policy-making will take place.

The Section II undertakes a review of how American education plans for the future. Rather than attempting an exhaustive description of planning, we develop five analytic models to synthesize some major different ways of viewing the future. The first model states that the predominant approach is to view the future as not essentially different from the present. Planning, limited by the annual budget cycle to anticipatory administrative behaviour, responds to incremental shifts in inputs.

The second model (the future-as-an-extrapolation-of-the-present) encompasses most of the medium-term education planning in the United States. It describes the behaviour of the larger subsystems; e.g. some state departments of education and the U.S. Office of Education. The two major planning variables are student and teacher populations and available economic resources. Except for extrapolated shifts in these functions, all other variables tend to be held constant. Examples are given of planning based on social demand, manpower development, and investment in human resources. There is little attempt to forecast changes in other technological, economic and social forces which are considered exogenous to education. Their potential future impact is rarely taken into account.

The third model is the single alternative future. Much short-term educational innovation and change reflects client dissatisfaction with the status quo. This dissatisfaction tends to degenerate into a crisis of faith in the core system of schooling. It produces a demand for an alternative, which is really the absence of the crisis in the near future. The model is applied to two major shifts now underway: individualization of instruction and decentralization of school systems. This approach rarely takes account of the future consequences of these shifts

on other aspects of education. Moreover, it does not consider the multi-dimensional character of the future (i. e. the exogenous variables) which may well reduce the effectiveness of these crisis-generated, uni-dimensional alternatives.

A variation of the single alternative future is the technological future. It focuses only on technological possibilities, but it does project out into the longer term. Examples of radical technological breakthroughs in education are considered. These prophecies, however, do not consider in what ways the educating system must change in order to utilize technologically-prescribed solutions, nor what consequences these technologies might have on the content and objectives of education.

The comprehensive future model is the closest to the multi-dimensional criteria we have set forth. The few examples which exist include the pre-planning work of the Eight State Project and some educational planning underway in New Towns. Future possibilities, however, are not systematically forecast or analysed. These attempts at more comprehensive planning still take their main direction from the current scene, although they do attempt to take into account the complex interrelationships between educational and non-educational factors.

In sum, there appears to be, as yet, no serious planning experience which attempts to speculate comprehensively and systematically about longer-term possibilities in the educational domain and its social environment. The reasons for this stem, in part, from problems which the futures-perspective has yet to resolve. These problems, of a conceptual, organisational and methodological character, are considered in Section III.

The non-centralized, pluralistic character of decision-making in the education complex suggests that these problems extend beyond the boundaries of technical planning, per se. Thus, we describe the educational polity, which consists of suppliers and beneficiaries (e. g. educational clients, consumers, interest groups, etc.). The educating system is perceived by many groups as in a state of crisis, and the polity is fragmenting. The issue is whether a consideration of future alternatives to the present might exacerbate this fragmentation, particularly if alternative educational goals are specified. Another issue is how existing education institutions in the core might react to alternative futures, some of which call into question their future relevance and effectiveness. We speculate that much educational innovation and change will take place in the periphery, with the creation of new institutions, programmes and methods, parallel but perhaps contradictory to the traditional formal subsystems.

Moreover, a clarification and specification of educational goals and values may set the stage for proliferation of alternative educational models if the society and the educating system can tolerate diversity. For that to happen, there must be a reconstitution of the polity and the development of new, and utilization of existing, conflict-resolving mechanisms.

We next consider problems in policy-making, particularly the question of when, where and how to make interventions. The idea of futures-history is introduced as a major instrument for planning. Futures-history attempts to identify the critical points where policy-making should intervene to bring about a more desirable future among various alternatives. But the more remote the future, the less possible it is to monitor the effectiveness of policy choices and interventions. It is necessary to specify intervention points on the pathways to the future, as well as to increase our knowledge of what is happening in the educational present so as to identify salient system trends. Technology might be employed to promote policy diversity.

The third set of problems lies in the area of educational planning. One technical issue is the need for planning to utilize comprehensive tools for forecasting and analysing exogenous variables. A second need is to develop ways to analyse futures-history. A definition of rolling planning is provided to suggest the cybernetic, circular and wave-like progression of long-term planning which takes into account alternative futures.

The critical administrative problem is where, within the educating system, to locate the functions of futures-casting and the analysis of futures-history. Two caveats are set forth: first, that surmising forums be politically independent of administrative/policy structures; and, second, that their work be broadly disseminated to the educational polity in order to provide a framework of alternative scenarios within which the polity may specify and debate its educational goals.

Finally, we review some recent research on what kinds of cognitive styles and belief sets are required to think about alternative futures in the longer term. The research suggests that open-minded persons (integratively complex) capable of dealing with ambiguity and uncertainty are better equipped than integratively simple and concrete persons to make forecasts based on conjecture as well as from hard data. The research has implications for the selection and training of futures-planners.

In the Postscript, we once again ask what futures-thinking means. The thesis is that it is a metaphorical construct whose value lies in enhancing the ability to make practical judgments and choices in the

present. This is the task of policy-making. The futures-perspective might also serve as a powerful tool in the educating process itself because the pace of social change increases the pressure to equip students to make choices for the future.

N. B. Since the first draft of this paper was submitted to the Centre for Educational Research and Innovation of the OECD in June, 1969, research then underway at the Educational Policy Research Center at Syracuse has advanced to various stages of completion. This research, with some few exceptions, is not directly discussed in the body of this paper. However, it may be of interest to the reader to have a brief review of those projects of the EPRC which relate closely to the main points of this paper and which have reached the stage where at least preliminary results are available.

In the Appendix, this brief review is undertaken. Specific research projects are mentioned and relevant Working Drafts and Technical Memoranda, most of which are not yet published, are identified. They are available upon request. In this new appendix, the discussion of projects and papers follows closely the sequence of analysis in the paper, i. e. starting first with methodological advances in thinking about the future, going next to substantive analysis of germane educational policy issues from the futures-perspective, and finally addressing some of the problems encountered in attempting to translate the analytic approach to alternative futures into the operational domain of long-term educational planning for alternative futures.

I

THINKING ABOUT THE FUTURE OF EDUCATION

A. THE IDEA OF ALTERNATIVE FUTURES

We cannot know the future. As de Jouvenel points out*, the future lies only (but importantly) in the human imagination. It is not factum but futurum. We cannot predict the nature of the future, because we have no way of validating our predictions until the future becomes the present. But, though we cannot know the future, there is a strong desire to forecast the future. Sometimes, indeed (and particularly in everyday language), this forecasting is called prediction. But in the strict sense, we cannot predict the long-range future state of affairs. The requirements for making predictions, for testing and validating them, do not exist with respect to the future, but only with respect to the past.

Yet the attempt to anticipate and control the future is not new in human experience. By definition, planning attempts to anticipate the future and bring some measure of control to its explication. The conduct of daily life would be impossible were we to deny that the future, particularly the near future, did not exhibit fundamental regularities on which we relied because of our knowledge of the present and the recent past. As de Jouvenel has put it, "If society tends on the whole to conserve the present state of affairs, our present knowledge has a high chance of being valid in the future. On the other hand, the future validity of our knowledge becomes increasingly doubtful as the mood of society inclines towards change, and the changes promise to be more rapid". **

It has been argued that there is only one future, namely, that future state of affairs that will come about at the point in time when the

* Bertrand de Jouvenel, The Art of Conjecture, Basic Books, Inc., New York, 1967.
** Op. cit., p. 10.

future has become the present. But even if we could know which state of affairs that would be, the only reason for our attempting to know it would be to alter it by intervening in the present with a view to inventing a different future. If, on the other hand, we choose to view the future as a series of possible, plausible, more or less desirable states of affairs which may, but not must, come about, then we are confronted with the necessity of exercising our practical judgment in making policy choices to bring about a future state of affairs which we find more desirable. We are saying, here, more than that actions taken in the present have future consequences. We are suggesting that these consequences will influence those of a number of possible futures which may be more or less likely to come into existence. Thus, it becomes important to explicate, as systematically as we can, the content of the many pictures of the future we hold in our collective imaginations and to choose from among them those which we may prefer to attempt to bring about. Thus, educational planning should not be limited solely to an extension into the future of what we know about the past. It is also an exercise in choosing among many alternative educational configurations and deciding which to attempt to bring about.

What we are suggesting is that there are many future possibilities, for our speculations about the future represent not only an attempt to project into the future our knowledge of the past; they also represent a declaration of our intentions (or desires) as to what the future might become. Taken all together, they comprise not one, but indeed many alternative possibilities. Moreover, these possibilities multiply as a consequence of our increasing recognition that "the mood of society inclines toward change, and the changes promise to be more rapid". But this might well imply that we should develop more systematic methods for formulating these possible future states of affairs in order to become better acquainted with the content of our imaginations and in order to define more clearly the choices which lie before us.

We have talked about futures-thinking as requiring an explication of alternative states of affairs. What do we mean by this? Perhaps the essential dimension of futures-thinking is that it cannot rely solely upon the uni-linear extension into the future of data from the past. The techniques available to us for extrapolation become weaker the further into the future past and present trends are extended. In the area of manpower development forecasting, for example, it is clear that as we attempt to deal with the middle-term future, reliance upon manpower forecasts as "hard" data is seriously jeopardized by our inability to identify and explicate all, or even the main factors of change which impinge upon the size and character of this demographic material.

It should be clear that we are not primarily concerned with what is called the short-term. Within the shorter-term horizon, it is

possible to make reasonably well-validated and reliable projections if we clearly define the endogenous variables and exclude exogenous factors. In the short-term, for example, manpower and economic projections serve as the basis for a great deal of planning, and not only in the educational domain. Educational planning techniques and models, as well as forecasting instruments, generally focus on a time period whose outer limites are seldom more than ten and more likely five years or less. A good example of the limited time-range of educational forecasting in the United States is found in Education in the Seventies, a series of planning papers prepared by the U. S. Office of Education. * Rather than describe these as "planning" papers, we would prefer to refer to them as pre-planning documents, containing forecasts based upon the extrapolation of trends, under explicit assumptions, for the 1970-1975 period. The data base is either 1950-1960 or 1955-1965. Models are developed in such areas as educational expenditures; school and college enrolments; and supply and demand of elementary, secondary and college-level teachers. But even for the seven-year period up to 1975, different assumptions about the "social demand" for educational places, about fiscal constraints, and about "new concepts" in schooling provide widely separated minimum and maximum parameters whose chief characteristic is their uncertainty. Moreover, American educational planning rarely goes beyond the near-term (up to five years) and, unlike educational planning in parts of the "development" world, has generally developed neither the techniques nor, apparently, the intent to attempt to plan for the medium- or long-term. Yet even the five-to-ten year range puts the planning process into the realm of speculation, though the indicators are quantified data which lend them an appearance of hardness and reliability.

The point is that the longer the time perspective, the more uncertain are the assumptions on which linear projections rest, and the greater is the "spread" between the maximum and minimum parameters of the functions extrapolated. The reliability of these assumptions decreases because we are less certain both about our expectations and our intentions. As the pace of social and technological change accelerates, educational planning can no longer rely almost exclusively (as it does now) on the solution to economic and demographic equations, "other things being equal", because the "other things" throughout society which impinge upon the educational future will also change.

Paul Alper points out a number of fallacies contained in educational planners' primary reliance on gathering and projecting "hard"

* Education in the Seventies, a series of planning papers prepared by the Office of Program Planning and Evaluation, U.S. Office of Education, Washington, D.C., U.S. Government Printing Office, May 1968.

data, irrespective of the substantive goal focus of various manpower or econometric models employed. "Educational planners", he suggests, "should produce results which evidence ranges of assumptions, exogenous variables, and the like, coupled with attached probabilities of outcome, rather than hairline predictions as is done at the present". * These are the requirements for planning which a focus on the medium- to long-term demands. In later sections of this paper we shall discuss some of the attendant problems for planners and policy-makers and indicate just how unhabituated American education is to considering the "exogenous variables" as it projects itself into the future, or even as it attempts to resolve current crises.

We are forced, then, to conjecture in some way not only about the demographic and economic parameters of the future, but also to include an estimate of the future social order in all of its dimensions (i. e. technological and scientific, economic, political, social, cultural, normative and ideological). That estimate, since it will explicate our intentions, as well as state the limits set by extrapolations of past trends into the future, must inevitably produce a series of alternative futures. The question is, can these alternative futures be formulated in such a way as to increase the likelihood that educational policy-makers and planners will use them?

B. METHODS FOR THINKING ABOUT ALTERNATIVE FUTURES

Only within the past fifteen to twenty years has the attempt been made to bring some system to the exercise of speculating about the future. ** A number of alternative and supplementary methodologies have been developed. Among these are: a) the construction of coherent scenarios of the future; b) contextual mapping; c) the Delphi method; d) the cross-impact matric method; and e) system forecasting. The Educational Policy Research Center at Syracuse (working with members of the Hudson Institute and the Institute for the Future), since its inception in 1967, has been attempting to employ these methods to develop complex alternative conjectures about the medium- to longer-term so as to provide pictures of possible environments within which alternative educational policies can be imbedded and their consequences considered. The key to this approach is the recognition

* Paul Alper, "A Critical Appraisal of the Application of Systems Analysis to Educational Planning Models", IEEE Transactions on Education, Vol. E-11, No. 2, June 1968.

** Olaf Helmer's Social Technology, Basic Books Inc., New York, 1966 contains a brief, clear review of the methodologies for future-casting, or forecasting into the long-term, for the reader who may be unfamiliar with this emerging discipline.

that education, whether viewed as a dynamic system of inputs and outputs, or in terms of the goals it seeks and the values it supports, or as a process in which certain (formal) kinds of learning occur, is not an isolated phenomenon separate from what goes on in other institutional orders and in the symbolic life of the society.

The policy determinations of the past that led to the present configuration of education did not (and probably could not) take into account the sweeping effects of world-wide change since the Second World War. Efforts are now underway, however, to systematically explicate forecasts by experts in the scientific, technological and social areas on the likelihood of a multitude of events and forces up to and beyond the year 2000. These conjectures, we think, will present strong evidence that educational policy formulation and planning must begin to take into account the total environment of the future. Otherwise, the preparation of our current crop of students (numbering now some 25% of the American population) might well find their knowledge, capabilities and skills irrelevant to the demands of the future. They may be rendered incapable of exerting influence on what that environment might become. It is a sobering thought for educators and planners alike that current students at the primary and secondary levels in America (numbering approximately 50 million) will just be coming into positions of responsibility at the turn of the next century. * Moreover, the tens of millions of youngsters who have yet to begin their formal schooling under the influence of "plans" now under formulation will live out the greatest part of their lives in a world beyond the year 2000. Some features of that world, if the past twenty years hold any clues, may well be dramatically, perhaps traumatically, different in degree and kind from the present.

At the moment of this writing, the staff of the EPRC, in cooperation with the Institute for the Future, is generating forecasts of events and trends in bio-medicine and in social affairs, and is attempting also to systematically conjecture about the possible social consequences of break-throughs and innovations in the future of technology. The Delphi method is producing a rich panoply of possibilities which, in the months ahead, will be interwoven into a number of time-sequenced, alternative scenarios. These, in turn, will comprise the exogenous variables of the future environments with which education will interrelate.

* The Digest of Educational Statistics, National Center for Educational Statistics, U.S. Office of Education, Government Printing Office, Washington, D.C., November 1968, p. 2, Table 1: The Fall 1968 enrollment figures, kindergarten through grade 12, public and non-public, were estimated at 50,900,000 students.

We have already posed the crucial question of whether alternative futures generated in this manner can and will be used by educational policy-makers and planners. Subsequent sections will deal with the operational aspects of this question more fully. But it is clear that one major aspect of this question is how to judge the plausibility of these scenarios.

One criterion of plausibility may lie in the richness or completeness of the scenario itself. A description of a future state of affairs which left out some significant set of elements would lack plausibility, because the occurrence of those elements, whatever their nature, might possibly affect the likelihood of occurrence of other events in that scenario. One might ask of a scenario, to what extent do the events and trends thus depicted represent all of the relevant factors necessary to produce a sense of plausibility. If it can be said of a specific scenario that an important factor has been omitted, then its plausibility is reduced.

Clearly, also, the notion of probability is a component in a scenario's plausibility. Making "guesstimates" about the probability of occurrence of one or another set of events in the future in itself is a process about which we know relatively little. [In Section III of this paper we discuss certain research questions about cognitive styles and affective components which may impact upon different kinds of forecasting behaviour by experts.] To some extent, such probability judgments will rely upon the extrapolation of observable and measurable trends, particularly in technological, demographic and economic areas where the tools for the collection and analysis of data have reached a reasonable level of sophistication. But high-probability forecasts with respect to a set of events do not for that reason alone increase the plausibility of any particular scenario, because we recognize that life contains many improbable or unforeseeable occurrences some of which may have considerable impact upon what happens. Indeed, the most surprising future would be a future which contained no surprises.

Therefore, in our review of education in the United States, as it attempts to take account of its future possibilities, we define the futures-perspective as multi-dimensional for two reasons. In the first place, it is the case that different persons hold different views about the future. Since we cannot know or predict the future, we must attempt to explicate the content of these expectations, irrespective of the extent to which they derive from projection or from vision. But secondly, and despite the tradition of subject-matter disciplines in the social sciences, our capacity to deal systematically with the interrelatedness of events and forces throughout society is slowly increasing. The tools of systems analysis and operations research tend to force the policy analyst to bridge the disciplinary divisions that have separated

the social sciences and philosophic and humanistic disciplines. As we begin to utilize these theoretical and operational bridges in our conjectures about the future, we are confronted with a variety and richness of human, social, ecological and technological interactions often neglected by educational planners relying upon any simplistic, unilateral projection of a single version or vision of the future. *

In summary, as we study more remote futures, we must rely increasingly upon our ability to speculate systematically so that we can analyse their content and "force" the reasons for the specific conjectures. Two methods are particularly appropriate to this activity. The first, the Delphi method, we think offers a reasonable and systematic approach to explicating the reasons why experts differ in their judgments about the likelihood of specific events (which we use as the indicators of larger trends and social developments). It also provides a framework for developing consensus among experts on the time parameters for their forecasts. ** The main caveat is not to limit these speculations to a uni-dimensional line of change, but rather to enrich them by initially forcing out into the open all which our imagination and experience can conceive, informed by our understanding of the fundamental trends of contemporary life.

The second, the cross-impact matrix method, appears to be a potentially powerful tool for generating just this very rich mixture of interaction among possible events in the future from which we can produce a number of different scenarios. *** The Delphi method provides a way of eliciting judgments from a group of experts about the likelihood of occurrence of any number of specific events within different time periods in the future. It assumes that experts treat each event on a list of items as an independent forecast. The cross-impact matrix raises questions about the possible interactions among these events, which would influence their conditional probabilities. Thus, if we assume for the moment, that forecasted event A actually turns out to occur at some specified time, we may then speculate on its potential impact upon the occurrence or non-occurrence of event B, which under Delphi was independently forecast. Will event A, if it occurs, increase

* This is not to denigrate visionary versions of the future. Indeed, one powerful mind, through its own internal and complex mental processes, may well generate such visions, whether of a projective, prescriptive, apocalyptic or utopian variety. This is termed "genius forecasting". We only mean that for policy analysis and planning (hence, "operational" purposes) we ask questions about the plausibility of the vision, and thus subject it to systematic analysis utilizing the most effective instruments available.

** The Delphi technique is discussed more fully by its author in N. Dalkey and O. Helmer, "An Experimental Application of the Delphi Method to the Use of Experts", Management Sciences, 9, 1963.

*** T.J. Gordon and H. Hayward, "Initial Experiments with the Cross-Impact Matrix Method of Forecasting", Futures, Vol. 1, No. 2, December 1968.

or decrease the likelihood of occurrence of event B, and how much over what span of time? Answers, of course, also rely upon reasoned conjecture. But by making explicit judgments about the enhancing or inhibiting relationships among a series of forecasted events, and by programming the enormous variety of these judgments on a computer, it becomes possible to develop an extraordinary number of possible scenarios of the future. This forms the basis on which we can begin to "test" policy choices and educational plans by carrying out their consequences into these "futures". To be sure, our understanding of the consequences of educational decisions taken in the present also represents, at best, the most informed conjectures we can make. There is no pretence in the use of these methods, of "predicting" the outcomes of educational policies, or of assuring political decision-makers that by paying attention to the future, planners can provide a sure way of controlling it. But the opposite approach - to neglect the future - means that we must construct our policies and plans only on the basis of present needs and problems, most of which, in any event, emerge from past inadequacies.

This latter approach characterizes most of what passes for educational planning in America. It is an inadequate basis, we think, on which to stake the future of education in the United States; for it implies that technological and social changes and developments which we have become increasingly aware of during the past two decades will sweep us inevitably into a future state of affairs. On those grounds, the question of reasoned control of human destiny becomes a dead issue. * We do not, then, choose the future; we adjust to it.

The overriding issue raised by the futures-perspective is our ability to deal with uncertainty and ambiguity. The greater the number of alternatives we can generate, the greater the strain placed upon our capacity to make sound choices which will provide direction to our activities. The development of complex institutions coupled with the application of sophisticated planning techniques represents, in education as elsewhere, an attempt to bring order, predictability and stability to what would otherwise be a chaotic state of affairs. In traditional societies, the mechanisms of social control proliferate throughout the symbolic and behavioural life of the society. In more modern, complex societies, with their increased division of labour and specialization of role and function, the state takes on the function of formalizing and

* We recognize the philosophic issues which underlie this argument. Suffice it to say, for the purposes of this paper, that some notion of the possibility of human control of, or at least impact upon, its future is implicit in any attempt to deal with the uncertainties which lie before us. Moreover, some such assumption would appear to underlie the entire field of planning which represents, whatever its present degree of effectiveness, an active, as distinguished from a purely reactive, approach to human purpose and social events.

legitimizing the instrumentality of social control so that there is one identifiable set of institutions to which men can appeal for the adjudication of competing interests, claims and expectations. Yet the further one casts into the future, the greater becomes the lack of certainty about the parameters and dimensions, both of our expectations and our intentions. There is, in other words, a fundamental and dynamic tension between the uncertainty of the more remote future and the need for certainty which action and choice impel us to impose upon the present. It is a tension between stasis and kinesis, between being and becoming, between knowledge and action, the former involving knowing, the latter involving choosing. This tension is perhaps the single most obdurate problem with which educational policy-making and planning must deal.

C. THE DOMAIN OF THE EDUCATING SYSTEM

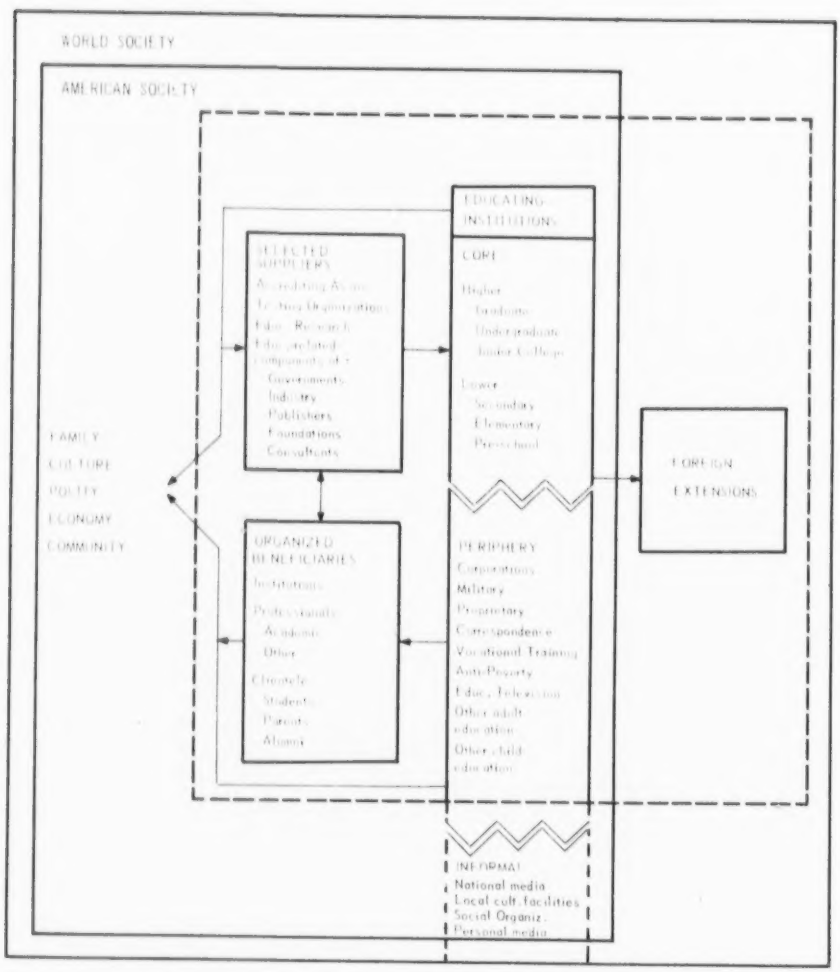
The discussion, so far, has been formulated primarily in theoretical terms. But, if the futures-perspective is to be more systematically introduced into the educational setting in the United States, it is necessary to provide a conceptual framework for identifying what this setting encompasses. A discussion of how American education might more effectively consider its alternative futures through long-term planning must rest on a useful and legitimate view of the educating system.

A potentially powerful approach to delimiting this domain lies in the application of systems theory. This approach emphasizes the open-ended, macro-system character of American education, choosing the term "education complex"*, to signify a massive social system involving all organisations associated with the provision of formal instructional services. This macro-analysis facilitates taking a broad view of education in order to specify the most important dynamic interrelationships of the organisational and symbolic activities which affect the future of the system. It serves, in other words, as a basis for system-forecasting by identifying the salient features and trends of the system. Chart I diagrams this emerging macro-system.

* This analysis of education as a "complex" draws heavily upon the work of Michael Marien, a Research Associate with the Educational Policy Research Center, who has been engaged for the past two years in developing an overview of American education which facilitates a systematic analysis of its major characteristics as they might impact upon, indeed serve as the limits for, its future development. Michael Marien, "Notes On the Education Complex as an Emerging Macro-system", an EPRC Working Draft, April 1969.

Chart 1

OVERVIEW OF BOUNDARIES AND COMPONENTS
OF THE EDUCATION COMPLEX



Note: This Chart is from an EPRC Working Draft entitled *Notes on the Education Complex as an Emerging Macrosystem*, by Michael Marien, April 1969.

Critical to this overview of the complex is a recognition that the domain includes much more than the traditional system of schools and colleges. That system, of course, involves the local level, public and parochial, elementary and secondary school systems, as well as private schools, state school systems (including the state departments of education), colleges, universities, and the state university systems. These are the traditional components which comprise the "formal" educational system and which lie at the "core" of the complex.

Growing out of, interacting with, and in important ways independent of this core system are peripheral educating activities. The periphery involves the multitude of programmes for adult (and some youth) learners, whose size is soon to surpass the number of students enrolled in the core institutions. These programmes include adult education, vocational education, continuing education, remedial education, training and retraining (including many of the manpower development and training programmes), and youth activities. Generally referred to as "non-formal", these programmes are sponsored, planned, developed and implemented by business enterprises and industrial corporations, government agencies, the military establishment, educational television, sometimes in co-operation with "core" educating institutions. It is important to note that often the instructional activities are, in fact, as "formal" (in terms of the structure of the teaching-learning setting) as any to be found in the core school programmes.

One source of evidence for this critical distinction between core and periphery stems from recent research on the rapidly changing and growing "learning force" in America, particularly as it relates to: i) changing balances between "work" (i.e. employment for compensation) and leisure, and ii) the impact of technology on occupations and occupational obsolescence. * This distinction forces a reconsideration of the domain of American education. The scope of the educational enterprise has come to include a variety of "peripheral" activities which almost equal and will soon surpass enrolments in primary, secondary and higher education. This fact forces us to raise questions about the limits of what we mean by education, even in the institutional sense. In considering the "exogenous variables", which may effect new forms and contents of the educational enterprise in America, can we limit the discussion of adult needs, adult attitudes, adult roles, to the traditional educational function of adaptive socialization? Just here

* Initial data were first presented in Annals, September 1967. It will receive more exhaustive treatment in: Wilbur J. Cohen, Bertram M. Gross, and Stanley Moses, The Learning Force, Basic Books, 1970. Members of the Educational Policy Research Center staff, including Mr. Moses, are currently engaged in formulating alternative scenario for post-secondary education in the future in order to provide a framework for policy analysis.

is a totally new agenda for the future of American education, an agenda which, at the outset of attempts to define it, would seem to include all of the factors of technological and social change which now affect not only "students" but also adult life.

The dividing lines between the core and the periphery are blurred, but purposefully so, because the reciprocal impact of each appears to be increasing. For example, scores of thousands of adults enroll in higher education programmes for career training, refresher training, and skill upgrading, often sponsored and paid for by their employing institutions. Yet degrees can be obtained in this manner, and the impact of adult participants on the more standard higher education programmes and institutions, while difficult at this stage to calculate, may be one increasingly important component of a future scenario of American education. Contrariwise, some of the most important innovative work, for example, in such areas as programmes and computer-assisted instruction, is carried on by profit-making organisations, under government contract, for disaffected and disadvantaged youth in the inner-city for whom core institution programmes have not been very effective. A critical factor in the conceptualisation of the complex is the growing significance of peripheral activities relative to the core.

One central feature of the complex is the selected suppliers which provide goods and services, amounting to billions of dollars in money value, to the educating institutions, and which participate in complex ways in shaping the policies which determine the directions of education. On the symbolic side (which extends beyond the boundaries of the ideological and includes the impact of ideas), there are organisations which, though far removed from the classroom and the formal organisational charts of educating systems, appear nevertheless to be particularly influential. In addition to the many government agencies, which constitute a formally "legitimizing" configuration of laws, rules and administrative determinations in providing standards and some programme directions, one must also take into account the testing organisations, private accrediting associations, educational research and development organisations, and the education-related activities of manufacturers, publishers and foundations.

The entire society, of course, possesses a fundamental concern with the outputs of the formally educating institutions. The society is the receiver of these outputs, although at the present stage of theory-development it is not easy to determine the multiple meanings of these outputs which become inputs to other systemic orders of social interrelationships and activities. The current emphasis in educational planning on specific categories of input-output relationships, such as social demand, rate of return, manpower development, citizenship education,

or adult literacy, etc., suffer because of their incompleteness. The uni-linear projection or goal focus is, we think, an inadequate framework for considering which among the many input-output pathways in the social, political, economic and cultural arenas afford possibilities or set limits to the future directions education may take.

As a start, however, the idea of the education complex includes certain groups of organised beneficiaries representing various interests which are especially concerned with what happens in American education. Among these are the various groupings of institutions which promote common growth and survival, such as the American Council on Education, professional associations interested in survival and the growth of the profession, employment conditions, and the production and/or dissemination of knowledge, such as the National Education Association, and clientele groups interested in the various services of educating institutions. These groups (which serve to benefit most by promoting changes which satisfy their interests) are prominent advocates of the single, desirable future which serves as their alternative to present conditions.

This view of the education complex, as an emerging social system whose boundaries or interfaces with the total environment are blurred and changing, facilitates a focus on non-formal learning. This results from national (or "mass") media, local cultural facilities (museums, libraries, zoos, etc.), social institutions (family, church, politics), and personal media (telephone, mail, etc.). In recent years, opportunities for informal education have increased substantially, especially through the proliferation of television networks and the widespread purchase of receiving equipment. Indeed, the relevancy, immediacy, and sensitivity to consumer taste exhibited by the mass media are hastening the perceived obsolescence of educating institutions. The widespread availability of personal motor vehicles and globe-spanning air travel has granted considerably greater access to cultural centres around the world, thus eroding the authority of the scholar and classroom teacher as a cultural disseminator and giving the complex an emerging transnational character.

Alternative educational futures, to be relevant, must consider trends in this area. New developments, such as electronic video recordings (EVR) which enable cassettes to be played through the home television screen, may have a profound impact on formal education - whether or not educational planning takes these kinds of potentialities into account. It is not at all clear that the core institutions will be allowed to "invent" the future of American education.

Who will invent the future of education? The answer to that question can only emerge from a recognition of the pluralism in the system. In

Section III, we shall consider the operational problems which the futures-perspective poses for educational planning. The analysis will partially rest on the nature of the decision-making apparatus. The foregoing brief sketch of the educating domain serves to emphasize the complexity of that apparatus. Planning, whatever its quality, takes place within a complicated set of multiple interdependencies among a variety of institutions, associations, and clients. The web of power which controls education extends beyond the traditional and formal institutions of schooling and its legitimate administrative apparatus. It includes powerful suppliers and vocal beneficiaries, especially the professional associations, the teachers and the students who are demanding (and obtaining) power and participation in policy-making.

Authority and power in this complex are non-centralized. There exists a complex web of educational governance. Its non-centralized character facilitates the participation, through school board elections, through pressure groups, of millions of persons in developing the climate for change, for maintenance, for regression. No one person or office speaks unilaterally for education; the corollary is that, under certain conditions, and particularly when education is perceived as in crisis, a great many people do. Any plan drawn up, any policy formulated, at whatever level or subunit of the system, must take into account, even accommodate, pluralistic interests and goals. The most elegantly constructed alternative futures will never be translated into policy, plan and implementation unless the affected parties are involved in the deliberations which precede action.

II

PLANNING FOR THE FUTURE OF EDUCATION
(A Synthesis of Work Under Way in the United States)

In synthesizing the current practice of American educational planning as it views the future, we have developed a taxonomy consisting of five models. They form a set of points on a continuum covering the range of systems behaviour in which we are interested. The five models are:

A. The Future-as-the-Present,

B. The Future-as-an-Extrapolation-of-the-Present,

C. The Single, Alternative Future,

D. The Technological Future,

E. The Comprehensive Future.

This taxonomy provides a conceptual framework for analysing the behaviour of educational institutions, at various subsystem levels of complexity, from the viewpoint of the futures-perspective set forth in Section I. As we have pointed out, there is no single, central authority, legislative, executive or administrative, responsible for shaping American education. An exhaustive description of the general range of planning (and non-planning) practices of the core system alone would include the behaviour of literally tens of thousands of units. In the school year 1968-1969 there were about 20,000 public school districts consisting of close to 100,000 elementary and secondary schools. In addition, there were approximately 15,000 non-public (private) elementary and 4,000 non-public secondary schools, as well as over 800 public and over 1,400 private institutions of higher education. * The

* Digest of Educational Statistics, op. cit., p. 6, Table 7. These figures are estimated. Note that these statistics exclude the 50 state departments of education (or educational agencies) where a more comprehensive overview and responsibility for educational planning is, in theory, located.

models should be judged on the basis of their heuristic value in considering what the educational planning process must do to engage the future in a longer-term and multidimensional perspective.

A. THE FUTURE-AS-THE-PRESENT

This category serves as a "catch-all" for most of what the system itself would call planning. We find it more useful, however, to describe such planning as anticipatory administrative behaviour. The two chief characteristics of this "planning attitude" are: i) that the future is defined pretty much like the present, and ii) the lead-time anticipated, from an administrative and policy viewpoint, is generally one year. The essential point, however, is that the future is viewed, in this approach, as in no fundamental sense distinct or different from the present. This model includes the kind of planning usually done in the greatest portion of the thousands of subunits in the core educational system.

Each of these units possesses administrative authority and financial resources (whether from fees or from the local tax base) to develop at least partial alternatives to its present educational behaviour. This is not to discount the restraints upon innovative behaviour imposed by higher and broader administrative or legislative units which provide state aid to the local educational establishments and which set minimal standards through their certification and accreditation responsibilities. Nor do we discount the impact of market constraints upon the private and proprietary institutions. The interests of vocal beneficiaries (client groups, professional associations, etc.), suppliers, and other interest groups comprise a rich matrix for decision-making both for creative possibilities (alternative futures) and also for political roadblocks to innovation. Nevertheless, some of these educating institutions (a small minority) are engaged in planning further into the future. They are seriously attempting to reconsider their goals, inventing or adopting new strategies to achieve these goals, and are performing their educational activities in new and different ways.

Probably the severest constraint imposed upon long-term educational planning in the United States is the annual budget, taxing and appropriations cycle. This time dimension so foreshortens the operational focus of educational officials at all levels of the system that it becomes most difficult, administratively and psychologically, for them to think about alternative educational futures over the longer-term. They must fund operating costs and some capital costs from an annual levy of public taxes and an annual appropriation of public funds. The harried school official is charged with the responsibility of "making

ends meet" in a continuously escalating situation of rising enrolments and rising costs. He is not inclined to project this managed chaos very far into the future. Indeed, in supporting the need for comprehensive educational planning at the state department of education level, the Advisory Council on State Departments of Education has urged the U.S. Congress to appropriate federal funds for state education earlier in the fiscal year and "for periods of longer than one fiscal year". *

Under this model, decision-making considers the "future" on a year-to-year basis. Anticipatory administrative behaviour focuses primarily on annual, incremental shifts of quantifiable inputs. How many teachers are needed at what levels and for which on-going programmes or courses; how much money is available for operating expenditures; how many students are expected at the various grade levels; what quantity of instructional materials should be purchased - these are the kinds of issues which year-to-year administrative decision-making and budgeting focus on. It is true, of course, that drawing up plans for the following year's expenditures will require weighing certain kinds of alternatives. But these alternative strategies, because they are primarily implementing responses to input variations, deal in the main with acceptable minutiae of an on-going system of education. Even the possibility of introducing new instructional technologies is generally considered in the light of N+1 shifts in allocational strategies forced upon the administrative planning function by the annual budget cycle.

It is true that ad hoc planning of a kind exists. Annual budgets and programme descriptions are planned and determined prior to the commencement of the school year. Most of this "planning", however, represents systemic responses to inadequacies of the previous year's plans and to estimates of enrolments and funds available for the succeeding year. Decisions to introduce, for example, capital-intensive instructional or management technologies (e.g. computers) are based primarily upon fads permeating the larger system. Most subunits throughout the system are "copiers", not innovators. They have not engaged in the long-term planning which provides an opportunity to consider alternative uses of their capital funds before selecting one

* The Third Annual Report of the Advisory Council on State Departments of Education, "Focus on the Future Education in the States", Office of Education, U.S. Department of Health, Education and Welfare, U.S. Government Printing Office, Washington, D.C., March 1968. The Advisory Council was authorized by the U.S. Congress under Title V of the Elementary and Secondary Education Act of 1965, Public Law 89-10, and reports annually to the President of the United States and both Houses of Congress on the administration by the 50 state departments of education of funds provided under Title V whose purpose was to strengthen State Departments of Education, particularly in their leadership role as planning agencies for public education carried on within each state.

alternative with which they may have to live for ten, twenty, thirty or more years.

Even the attempt, so far mainly unsuccessful, to adopt the annual decision-making budget cycle relationship to the new PPBS approach would not appear to alter this situation. In theory, the great strength of the programme-planning-budget-system approach to policy formulation and planning is the pressure it puts upon the analyst to more exhaustively identify and precisely compute the cost of the strategic (resource) alternatives available to him and to use the evaluation of programme effectiveness to reconsider alternative programmes. In itself, this is an important task, for rarely does the education administrative official explicate fully the reasons for decisions to make incremental shifts in resource allocation and programme selection to achieve policy targets. Such explication carries with it the very real mandate to measure the degree to which such targets are achieved, and therefore to evaluate the effectiveness of the planning and programme performance. But the public education system in the United States is perhaps the one major institutionalised system in the country which up to now has not been held accountable for its performance and, therefore, has not been made to evaluate itself. That situation, of course, is changing. Performance, particularly among impoverished or disadvantaged groups in the society, is recognized as falling dramatically short of the standards which the society accepts as proof of educational achievement. But PPBS, like the methods of systems analysis and operations research from which it derives, does not seem to provoke, in practice, the formulation of new goals, or even a substantive debate on the relevance of accepted goals. It has not forced its users into an intensive reconsideration of the ends of the system to which it is applied, nor to reconsider the domain (boundaries) of the system. But no consideration of future possibilities, other than as the extension of existing conditions, is possible without entering into a fundamental review and, indeed, redefinition of the goals permitted by or to be sought after in the future.

B. THE FUTURE-AS-AN-EXTRAPOLATION-OF-THE-PRESENT

This model includes the kind of educational planning, some of it out to the medium-term, which focuses on extrapolating into the future demographic and economic variables of traditional concern to the educational enterprise. Outside of linearly projected shifts over time of clearly specified demographic and economic functions, the model does not take into account conjectures about possible, probable, or desirable changes in other aspects of education or its broader technological and societal environments. To put it another way, the future-as-the-extrapolation-of-the-present pretty much assumes that the future

will not substantially differ from the present except within the limits prescribed by the endogenous variables selected for analysis and planning. Institutional behaviour, in this model, rarely allows itself to be influenced by a consideration of the potentially pervasive consequences of technological innovations, even in the area of instructional technology itself. However, this kind of planning for the future does permit a reasonable degree of sophistication with respect to computing the costs of alternative strategies in resource allocation, other things being equal. But because "other things", to some degree, and perhaps to a dramatic degree over the longer-term, may well not remain constant, planning behaviour under this model does not force educational planners and policy-makers to systematically speculate about alternative educational goals for the future, about complex qualitative aspects of education and learning, nor about alternative societal futures. But any or all of these speculations might require substantial reformulations of traditional educational programmes and the development of new kinds of educational institutions and new ways of educating.

Not unexpectedly, this model describes the behaviour of some of the larger subsystems of education which encompass broader administrative or systems responsibilities. It is in the state departments of education, the state university systems, and the United States Office of Education that we begin to find the introduction of this (longer-term) planning which, at least in the formal sense, has been utilized for a number of years by those nations of the world which possess a more centralized educational authority. No such authority, of course, exists in the United States. Even where the higher units of authority provide an ever-increasing amount of funds, such as the state educational authorities, or Congressional appropriations through the U.S. Office of Education, they do not exercise control over many significant elements of the educational activity.

Of course, the funding situation is changing. For example, the trend is for the Federal Government, through Congressional appropriations, to finance an ever-increasing portion of the costs of higher education. "The Federal share of total current expenditures (in higher education) increased from about 15% in 1956 to 23% in 1966, in total funds an increase of 450%". * Estimated obligations for Fiscal Year 1967 of Federal funds in support of higher education were of the order of 1 1/3 billion dollars, out of approximately 16 billion, both current and capital expenditures. ** Total expenditures for higher education, all sources, for 1975 are projected to a low of approximately 31 billion and a high of 35 billion. *** If the percentage of the government

* Education in the Seventies, op. cit., p. 28.
** Ibid., p. 34, Table 23.
*** Ibid., p. 44, Table 29.

contribution remains the same in 1975 as in 1967, or if the trend towards an increased share continues, one might do well to conjecture about the likelihood of a demand for increased Federal planning in the field of higher education. These trends also hold true for Federal support of elementary and secondary education. The question is, what kind of planning may be undertaken, and to what extent will it tend to further "centralize" the system?

In this model, the future is not generally viewed as qualitatively much different from the present. The emphasis is rather on a quantitative extrapolation of the present. What is involved here is not an attempt to redefine the goals or the domain of education, or to reconsider what ends it might seek and in what different ways it might so seek them. Rather, the variables of the educational situation included in a five-to-fifteen year perspective (i. e. the medium-term) are exactly those for which certain projective and extrapolative techniques have been developed. The input variables, in the main, are recent trends with respect to the demographic characteristics of the school populations (teachers and students) and the economic resources which may be available for expenditures within the system. The output variables are specified occupational skills and/or projected earning capacities multiplied over time by projected numbers of graduating students. This approach is used as the basis for making capital investments in school construction, seldom for goal redefinition or new programme design. As Harvey J. Hartley has put it,

> "At the present time, the most sophisticated forecasting procedures of local schools have been developed to make pupil enrolment projections and to provide estimates of building needs. Very little has been done in the way of forecasting long-range curricular needs and objectives". *

One well-recognized formula in this model is "social demand" planning sometimes used by state university systems. In the states of California and New York, for example, the remarkable expansion over the past decade in the number of places in state-supported systems of higher education, and the proliferation of new two- or four-year institutions appears to have resulted from a significant increase in the level of educational aspiration held by the public, and the willingness of public officials to provide subsidiaries to higher education which have in turn reinforced the demand. As Herbert Parnes has suggested, however, "There is a . . . fatal circularity in this (kind of) approach:

* Harvey J. Hartley, Educational Planning-Programming-Budgeting: A Systems Approach, Prentice-Hall, 1968, p. 238.

demands for places is used to calculate 'needs' for education; but society's 'needs' for education determine policy which conditions demands for places". * The demand for education is not autonomous. It depends upon education policies which, through fluctuations in tuition fees, subsidies to students and/or institutions, and the actual investment in new facilities, affect these demands.

Particularly when projected out into the future, a planning focus on "social demand" would appear to be substantially inadequate for policy formulation. It does not appear that the various state university systems or the Federal Government have as yet considered the larger consequences of a presumed ever-increasing demand by the citizenry for places in the system. A decade ago the argument was made that an additional four years of formal education beyond grade 12, leading to a bachelor's degree, would produce over the working lifetime of the graduate increments to his income in the neighbourhood of $50,000 to $100,000. That economic justification may become illusory if and when a balance point is reached above which the preponderant portion of income-earning adults in this country do, in fact, possess four-year college degrees. Both from an economic as well as from a social-status viewpoint, the increase in equality of opportunity in higher education would tend to reduce the effectiveness of education as a system for selecting, among all adolescents moving into the ranks of adults, those to whom certain income-producing and status characteristics may be ascribed. The problem is that such a focus for longer-term educational planning would appear inadequate if we take the view that future society may see substantial shifts in attitudes towards work, leisure, patterns of income distribution, social-class relationships and mobility, to name only a few "exogenous" variables. Planning based upon a uni-dimensional perception of needs, goals and future environments may be more disadvantageous, not to say dangerous, than no planning at all - at least, with a longer-term perspective.

A second formula for planning among some of the larger subsystems rests on a notion of education as investment in human resources, with a resulting concern for manpower utilization and development. It is, of course, most difficult to anticipate changes in occupational requirements in a post-industrial society, even in the near- to medium-term. Moreover, the formal core system of education does not easily respond to such analysis by developing educational places and programmes which fit changing manpower definitions. Indeed, there is increasing evidence to suggest that the formal system of schooling can neither be justified, nor planned by rigorously aligning future occupational requirements with formal educational programmes.

* Herbert S. Parnes, "Assessing the Educational Needs of a Nation", in Educational Planning, ed. by Don Adams, Syracuse University Press, 1964, pp. 51-52.

The human resources investment goal underlies much of the manpower training in America for unemployed or so-called unemployable citizens - those who have been left out of America's postwar economic surge to affluence. These "poverty programmes" are not usually developed by core institutions. They have been sponsored mainly by Federal agencies and carried out by a mix of public and private (including profit-making) institutions in the periphery. Some of these programmes have been planned (fewer so implemented) most imaginatively in order to try to take account of the many non-educational factors which affect social attitudes and learning capacities both among the disadvantaged poor and among potential employers. It is interesting to note that peripheral educating institutions have been more responsive to these educational needs and more open-minded in taking into account a large number of social, political and economic factors in their programme development than core institutions.

Some of the most substantial educational planning now underway at the state level relies heavily on a manpower development approach, coupled with "social demand" and "rate of return" formulae. One state, for example, has recently completed an extensive projection of demographic and economic factors out to 1985 as the basis for a major upgrading and overhaul of its system of education at all levels. This particular state, in the southern region of the United States, is at present among the economically poorest in the nation, as measured by per capita income. Its system of schooling is failing to produce anywhere near the national average of students who complete grade 12, and is far below the national average of high school graduates who matriculate in or complete a four-year college programme or move on for a graduate degree. The state is just beginning to emerge from an essentially agrarian and rural economic condition. Its planning goal is to increase the amount and quality of schooling throughout the system, thereby expecting to raise performances to equal national averages, thus attracting industry (because of the existence of a "trained" manpower pool) on the basis of which all the indices of productivity and income will also, it is projected, move up to national average figures. Specific proposals are made for radically increasing teachers' salaries in order to decrease their "out-migration" from the state, for utilizing state bonded indebtedness capacity to underwrite major capital investments in new higher education facilities, and for developing a parallel line of technical training institutes to perform the job-skill training which the public schools are not doing.

On the one hand, it is encouraging that this state has begun to engage in planning which sets fifteen-year targets. On the other hand, the targets are to achieve unevaluated national norms in purely economic terms, which by 1985 will already have moved far beyond national averages of 1968. There is no such thing as a catching-up process

within these time limits. But more important, no forecasts are made or speculations attempted with respect to the character of occupational skills which may be required in fifteen years, or in thirty or forty-five years when the students will be living out their adult lives. There is no attempt to examine the host of nation-wide social and technological factors which might impinge upon any plan directed towards the objective of the state's industrialization and presumed concomitant economic growth. Both regional and macro-economic conditions are assumed to remain constant over time.

A closer examination of the state's extremely high rate of school drop-outs, at both the elementary and secondary levels, indicates a wide disparity of performance between white citizens and black citizens. Also, the rate of drop-out appears to correlate with those geographical sections (counties) which are the most rural and possess the smallest industrial base. In effect, the plan calls for concentrating educational development and industrial growth among the sections of the state which are already the most "modern", the most urbanized, the most industrialized. The plan gives no evidence of suggesting a political forum within which the various elements in the state's population may be included in a discussion and determination of the goals, the strategies, the underlying values, the implementing techniques suggested by the plan. In order to achieve economic parity with national averages, is it necessary for a region of the country to write off its rural sectors? And, indeed, what does economic parity mean, projected out some eighteen years, when the very content and structures of American affluence may change in subtle (or not so subtle) ways? The notion that educational investment and growth can be justified only, or even primarily, on the basis of a rather simplistic set of economic variables or growth targets restricts the content and objectives of that education to a view of human beings as economic commodities - with skills to sell and income to purchase. The ultimate effectiveness of the planning and implementing performance will be conditioned by a host of non-educational factors (e.g. future choices between work and leisure, between investment and consumption, changes in tastes, political dynamics, technological impacts and breakthroughs). But, then, should not these factors be taken into account? Both sophisticated extrapolation of present trends and systematic speculation about future possibilities are necessary for the completeness and reliability of the scenario envisioned by these planners. Moreover, projection of present trends is no substitute for a thorough examination of alternative educational goals and the provision of a forum for their discussion by the public.

Each and every planner and policy-maker possesses, implicitly, at least one scenario of the future in his mind. The problem is to explicate it and to subject it to the discipline of a systematic analysis of the critical exogenous variables and to a comparison with alternative

scenarios. The future-as-the-extrapolation-of-the-present model does not do this.

C. THE SINGLE, ALTERNATIVE FUTURE

The chief characteristic of this model is that in at least one, but usually no more than one, substantial way, the educational future is perceived as clearly different from the educational past. Generally, the difference between the past and the future is defined relatively simplistically, with the focus on a single goal or set of factors; for example, better learning performance, more effective teaching, utilization of the new instructional technologies, the end to racial imbalance in the schools, black studies programmes, more flexibly designed school buildings, decentralized school organisation and control, etc. The definition of the future, often only implicit in the policy, plans or programme, is uni-dimensional. The reason for this restricted view of the future is that the new policies and programmes are more often than not crisis generated. The future is seen as an escape from past and present failures of the system rather than emerging from a more thorough analysis of what the future might call for in the way of redesign of the educational system. Current crises in American education include: i) questions of financing higher education, ii) clientele disagreements over educational goals, iii) redefinitions of the polity of education - a question of who controls the schools, and iv) the ubiquitous demand for "quality education". They have engendered an emphasis on problem-solving related to past inadequacies rather than stimulating a systematic and extensive exploration of future needs.

This is not unexpected. A great deal of what is called innovation in education represents incremental shifts in one component of the educating system. Piecemeal changes are much more easily absorbed by existing institutions than more wholescale transformations. Planning, under this model, views educational change in terms of a single, alternative future which derives from dissatisfaction with the present rather than a consideration of possible future alternatives which might well reveal a new set of policy choices. Consider, for example, recent innovations in elementary and secondary school programmes in what is called individualization of instruction. A review of the literature suggests that individualized instruction is a reaction to the judgment of school-leaders and parents that a level of performance, on one or more measurable learning scale, is inadequate or unsatisfactory. Since at present individualization of instruction is a major focus for much innovative activity in both the core and periphery of the education complex, it deserves further discussion. Broadly speaking, it is a response to the crisis demand for "quality education".

Schools which have introduced, experimentally or broadly, a programme of individualized instruction, share very little in common aside from this general sense of dissatisfaction. For example, the Tri-School Program carried out by the District of Columbia school system in three elementary schools has been established for students who come from a background of inner-city ghetto deprivation. Their performance on standardized achievement tests is dramatically far beneath the national averages. The educational environment of this new programme is purposefully considered child-directed and child-centred in which "children from kindergarten through sixth grade are motivated to learn by the discovery method, to explore and progress, each at his own rate, through a combination of applied technology and effective teaching techniques". *

One of the tools utilized in the Tri-School project is the Non-Automated Responsive Environment Booth which represents a combination of programmed instruction for beginning readers with a talking typewriter and other audio-visual aids. A somewhat similar utilization of the "talking typewriter" as an instrument of individualized instruction is employed in an increasing number of inner-city public schools. In these cases programmed instruction and audio-visual/computer-assisted instructional machines are introduced in the attempt to upgrade the performance of school children whose achievement in fundamental skills areas of reading, writing and arithmetic is far beneath national averages. The innovation is a significant departure from traditional "lock-step" instructional practices throughout the country. Their adoption represents a response to perceived critical deficiencies in the educational progress of the schools for disadvantaged and culturally deprived children in the society, most of whom are also members of minority groups. The educational future envisaged by the introduction of these instructional methods and technology is essentially defined as better performance on standard achievement tests, at least equal to national averages.

However, the introduction of new instructional technology as a component of an individualized learning programme is by no means restricted to inner-city schools catering to a lower class, minority-group clientele. Indeed, the introduction of the "new machines", whether or not in combination with a more sweeping redesign of the total instructional programme, may be found in other school districts where the performance of students is at least at national averages and which are located in middle class environments. Two of the most well known are the elementary public schools in Duluth, Minnesota,

* Learning to Learn - Highlights, Tri-School, Washington, D.C., National Laboratory for the Advancement of Education Conference, November 18-20, 1968, Washington, D.C.

and the Oakleaf School in Whitehall, Pennsylvania. They have initiated programmes of individualized instruction requiring transformations throughout the curricula and organisation: new learning materials, redesigned class schedules, a redefinition of teacher roles and teacher-student relationships, a proliferation of new specialist functions, and a major redefinition of educational "space" and "time". This kind of innovation can be viewed as an alternative to traditional instructional programmes prevalent in schools. They are initial attempts at "inventing the future" of American education ... although at this stage, we would prefer to designate it as "a" future rather than "the" future.

It will be some time before research now underway permits a rigorous evaluation of the effectiveness and consequences of these approaches and devices. After extravagant claims about the performance of programmed instruction, computer-assisted teaching machines, electronic gadgetry and the like some years ago, the educational technology industry is stating its case more cautiously. It is interesting to note, as an example of the influence upon educating systems from institutions and forces previously considered outside the domain of education, that teaching machines and programmed instruction are an outgrowth of the technology of information processing, storage, retrieval, transmission and reduction. These innovations did not emerge from the development of basic new knowledge about how people learn. *

A much more careful process of research, evaluation and experimentation is now underway. Enormous problems in creating the "software" have come to the fore. In the area of developing programmed materials, for example, it has been estimated that the cost of constructing an effective programme runs between $2,000 to $5,000 per-student hour. ** Kahn and Wiener have suggested that the currently more conservative statements about the application of computers to the instructional setting appear to run parallel, however, to the curve of invention, application and wider-range impacts in the area of technology generally:

> "... early in the innovation period many exaggerated claims are made, then there is disillusionment and a swing to over-conservative prediction and a general pessimism and skepticism, then finally when a reasonable degree of development has been obtained and a learning period navigated, many - if not all - of the early 'ridiculous' exaggerations and expectations are greatly exceeded.

* Charles E. Silberman, "Technology is Knocking at the Schoolhouse Door", Fortune, August 1966, Time, Inc.

** Ibid.

It is particularly clear that if, as suggested, ... computers improve by five, ten, or more orders of magnitude over the next thirty-three years this is almost certain to happen". *

It is just these potentially consequential effects which forecasters have to include in their speculations if decisions taken in the present are to possess relevance in a future state of affairs ... or are to help determine the character of that future.

This brief discussion of individualized instruction as a potential "new wave" in American education raises the question of how educational innovation relates to a consideration of the longer-term alternatives for American education. In a preliminary study prepared for the Educational Policy Research Center at Syracuse on individualized instruction it was noted that the research literature has not revealed any great definitional clarity. ** At least four distinguishable conceptualisations of individualized instruction emerge. These are: i) the programmatic or systems approach as exemplified by IPI (Individually Prescribed Instruction), which emphasizes efficiency and effectiveness of content mastery by relying essentially on the principles of programmed instruction; ii) Independent Study, which is viewed consistently as student activity in the physical absence of teacher control (though not in the absence of institutional control); iii) Indirect Teacher-Student Interaction which is based upon more student participation in student-teacher interaction; and iv) a combination of aspects of the first three approaches embodied in non-graded school organisations, which amounts to a vertical pattern of student progression through a hierarchy of learning experiences without regard to grade-level designations.

The implications and consequences resulting from some mix of these four approaches would appear to be complex, important, and as yet relatively unstudied. Yet they affect crucial organisational, teleological, structural, pedagogical and curricular aspects of the schools. Thorough analysis would also require a focus on a host of issues on the relationship between education and other sectors of the society. That is the problem with a vision of a single, alternative future: it tends to leave out more of importance than it includes.

For example, one could conjecture that the widespread adoption of an individualized system of instruction might mean that responsibility

* Herman Kahn and Anthony J. Wiener, The Year 2000: A Framework for Speculation on the Next Thirty-Three Years, The Macmillan Company, USA, 1967, p. 93.

** W. Timothy Weaver, Individualizing Instruction: Toward Some Principles and Consequences, Educational Policy Research Center at Syracuse, Working Draft, June 1968.

and control of curriculum may pass from the school to the child, or to his parent, or to the individual teacher. The consequences might conceivably have far-reaching impact upon the social structure of the school, the roles of teachers, parents, and administrators, as well as on other educational, industrial and cultural features of the society of the future. But what may these features be, taken from a non-educational viewpoint? What might be the consequences for the society of an educational system which is aimed primarily at maximizing the development of the individual? Will cognitive and effective characteristics of adults in the 21st century, who have undergone twelve or more years of individualized instruction, "fit" the economic, political and social patterns of that future? These issues are not considered. They can be considered if we attempt, in some systematic fashion, to: i) speculate about alternative possible configurations of the larger society in the future, and ii) conjecture about the consequences of various mixes of educational goals and programmes initiated 20, 30 or 40 years in the past (i.e. the present).

The recent experimentation and thrust of individualization of instruction represents an interesting, but by no means the only significant example of educational change which arises from a perceived dissatisfaction with things as they are. Another crisis, for example, is located in the polity of American education where the "beneficiaries" of the system are calling for a change in the governance of education. The formal decision-making apparatus of appointed administrative officials and elected school boards or boards of trustees, in combination with the professional bodies of educators and teachers, can no longer (it would appear) maintain their hegemony. There is a loss of confidence in the system among consumer groups, including students. Other groups, newly organised under pressures stemming from non-educational factors, clamour for representation in the decision-making process of the system. The issue (at the surface) is how shall the schools and universities be organised, and who shall control them. More deeply, the crisis of governance perhaps indicates the propensity of American society to attempt to rely upon its educating system to solve a variety of social problems.

The crisis - and its resolution - takes many forms. One is the radicalisation of demands by college students to participate in the power-centre of the university in order to affect its future role and function. Another is the demand for, and sudden emergence of, a new curriculum - the Black-Studies programmes - which is intended to speak to a host of issues whose relationship to the educational domain is by no means clear. Still another issue, which is generated by this broader crisis in the polity, is the decentralization of public school systems in the largest urban centres.

It is crucial for an understanding of change and reform in American education to realize how much occurs in response to crises, the dimensions of which are usually not earlier perceived by the officialdom of the system. Moreover, operational solutions not only represent an attempt at political optimization in an expanded or redefined polity, but more importantly they represent a usually simplistic and uni-linear alternative (to the perceived present state of crisis), the chief characteristic of which is the elimination of the crisis. For example, proposals advanced and plans implemented to decentralize the monolithic, hierarchical structure of an urban school system appear to pay little attention to the non-educational factors which have generated the educational crisis, nor to the future play of these very same factors in a situation which has been altered in one significant dimension only.

Of course, a particular crisis may be so grave that policy must focus on alleviating the crisis, irrespective of what new crises may emerge because the non-educational factors have not entered into the calculus. Crisis-generated policies are likely to fail for this very reason. In the decentralization of the big-city schools, whereby an attempt is made to lodge effective control of the school in its immediately contiguous neighbourhood so as to make the curriculum and teachers' behaviour more responsive to demands of parents, there is little perception of more fundamental changes (future alternatives) possible, conceivable or desirable in the larger urban, inner-city environment. The question, for example, of whether or not we ought to expect ghettos to exist in the megalopolis of the year 2000 (thirty years away when the children now in ghetto schools will be parents and adults) is not often critically considered. In the shorter-term, the possibility of increased teacher militancy or changes in patterns of state financial aid to big-city schools are not always considered, though these may provoke new crises which severely strain the decentralization policy. Long-term planning, undergirded by systematic speculation about alternative approaches to education within the context of multi-dimensional scenarios on the future, is seldom undertaken. But if we do not attempt to conjecture about the conditions of life in the big cities by the turn of the century and attempt to decipher the qualities of life which such future alternatives make possible and more or less desirable, how can we expect to plan for a total educational programme which might be relevant to these broader concerns?

D. THE TECHNOLOGICAL FUTURE

The technological model is a variation of the single-future model, but it encompasses a much longer time dimension. A sizeable portion of the literature on the future, both of society in general and of education, speaks to a large range of technological developments. Breakthroughs

in technology are the subject of much speculation about what the future may hold. Indeed, it is in the area of educational technology that scientists, technologists, educators and futurists generally do not hesitate to project into the long-term. But like the focus on a single alternative future, one critical variable of change, the technological, is assumed as paramount, with all other factors, educational and non-educational, related in a dependent fashion.

The model assumes that technological developments will solve, in the future, the problems and crises of the present. As Kahn and Wiener have put it: "Our capacities for and commitment to economic development and control over our external and internal environment, and concomitant systematic technological innovation, application, and diffusion of these capacities are increasing, seemingly without foreseeable limit".* (emphasis ours). They go on to note, however, that "the capacities of our culture and institutions to adapt to so much change in so comparatively short a time may be a major question; the stresses in domestic policies and in the international system may not be managed sufficiently by meliorist policies".

Consider, for example, an intensive research and design project sponsored by the Educational Facilities Laboratory in co-operation with the School of Architecture at Rice Institute.** The project explored new educational approaches and new ways of housing education without the constraints of continuity with the past. The fundamental assumption of the project was that the influence of technology on education and school building will explode in the next few decades. "Technology will exert an influence on education out of all proportion to the influence it presently exerts".*** Among the technologies designed were drive-in education, the motorised carrel, the shoulder carrel and the town brain. All of these technological innovations and developments were explored quite free of possible constraints imposed by social, political and economic modalities in the future.

The shoulder carrel, for example, is a private, air-conditioned, electronically-controlled booth, mounted on the student's shoulders and designed for use either at home or in school. The carrel would bring to the student a vast library of data, electronically retrieved and individually controlled, thus in direct competition and contrast with person-to-person teaching. The carrel weighs about 20 pounds, and incorporates such instruction media as UHF-VHF TV, tapes, records,

* Kahn and Wiener, op. cit., pp. 166-167.

** New Schools for New Towns, School of Architecture, Rice University, a project sponsored by Educational Facilities Laboratories, Inc.

*** Ibid., p. 4.

computer connection, two-way radio, telephone, slide projectors and screens. *

On the other side of this individualized electronic man-machine symbiosis is the Town Brain for transmitting "learning" to town residents of all ages. ** The Town Brain is a central computer bank, monitoring and programming centre which is electronically hooked up with a variety of audio-visual, computer-assisted communications links ranging from individual, hand-carried consoles, to home installed consoles, to portable conference units and mobile teaching units which permit the development of a total, comprehensive education system independent of classrooms, lecture halls and permanent school buildings.

Once set free, the developments follow logically: auto links, where educational facilities are made available to private cars with radio, two-way telephones, and charts; home study stations, to permit the home to replace the school house for most educational communication; Life Conditioner Boxes straddling the expressways which facilitate continuous "educational" exchange for all persons in the community limited only by the amount of material which has been programmed for electronic dissemination, etc. ***

These electronic education devices, whose proponents and inventors foresee as implementable by the year 1990, represent a technological response to the conditions of tradition-bound, non-responsive, monolithic and generally irrelevant education which, it is held, permeates the existing structure and system of formalized instruction in the core of the complex in the year 1969. There are two problems with these kinds of visionary proposals: i) How do we get from here to there; for example, the problem of planning and policy in a complex, pluralistic web of governance in the education system; and ii) What shall be the content and the substantive purposes of the material transmitted between the learner and the machine? What view of the nature of man and his education is presupposed by this kind of arrangement? Do we really know enough about what learning means, and what goals education might seek, to rest comfortably with this full-blown extrapolation of current experimentation and testing of electronic aides to the teaching-learning process? What socio-economic, political and cultural events and trends are assumed to occur in the next twenty to thirty years which will comprise a societal environment conducive to proposals of this kind?

* Designed by architect Charles Colbert to supplement teaching in a new town, ibid., p. 14.

** Proposed by educators John Tirrell and Albert Canfield, ibid., p. 16.

*** Designed by architect Cedric Price for a decentralized education system based on the Tirrell-Canfield programme, ibid., p. 24.

It is quite appropriate, of course, to formulate alternative technological solutions to the educational problems of the present, or technological solutions to other issues and crises in the general social order which erupt as the swirls of change impose some kind of dynamic, not yet clearly understood, on the historically static character of human existence. But it is crucial to also explicate, as systematically and clearly as possible, the host of assumptions and forecasts about man and society in such terms that we are able to move from the realm of vision, exhortation and criticism to the realm of planning, policy-making and implementing. If education, like other major modalities of human interaction, is to be illuminated by futuristic visions of the possible and the desirable, how do we get from these visions to the humdrum, enormously complicated, politicised arena of the present? What proposals of this kind (the longer-term technological speculations) do not perform is the intricate analysis of futures-history, which attempts to show the multiple steps between the present and this (or some other) vision of the future.

E. THE COMPREHENSIVE FUTURE

The model of the comprehensive future represents an attempt to categorize a relatively unique activity in American education: some focus on the future at least to the medium-term, in which the attempt is made to relate exogenous variables (non-educational factors) in that future state of affairs to educational policy-making and planning in the present. This is a new activity, so far restricted to individual sub-units within the system which possess some measure of control over immediate factors affecting their situation. This work has so far gone forward primarily in the stage of conceptualisation and pre-planning. What will be crucial in these experiments in multi-dimensional goal assessment and alternative strategy consideration will be their translation into detailed plans of action and their implementation.

The eight-state project on Designing Education for the Future is perhaps the best example of an attempt to explicate a comprehensive educational future at the pre-planning stage. That project, underway since 1965, has involved education officers at the state, university and local system levels, from eight Western states in a number of larger conferences for which papers have been prepared and discussions undertaken. * This project has attempted to develop a multi-level focus with respect to a significant number of dimensions of policy-making and planning. It has included some surmising about future technological

* The States are Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah and Wyoming.

and social developments and impacts, both within and outside the educational domain. It has set forth the need for a more comprehensive planning approach to the future of education in this regional area. It represents a unique undertaking.

But there are difficult problems yet to be solved. One is the familiar question of span of control - and, we would add, of enquiry. As distinguished from one school district, or one metropolitan area, the project brings together eight states, in a regional focus, which possess common concerns about the future of their educating systems. But they possess no common administrative/political structure for cohesive, long-term planning and policy-making which relates the conference activity (the "surmising forum") to the polity, the politics, the budget-making, the educational resources of each of the thousands of subunits within the region - or even to the eight state education offices.

Moreover, what should be the span of enquiry into the future? How will it be possible to deal effectively with the impacts of societal change on alternative regional futures, and in turn relate these two dimensions to educational goal-definition, futures-casting, policy-making and planning at the state and school district level? The analytic, planning and political tools are not yet developed which might facilitate and support the more detailed consideration of alternative goals and strategies, within one or another selected scenarios of the future, and which would encourage policy-makers to turn ideas into action and programme goals into consequences.

Among the relatively few examples of the comprehensive future are the educational programmes of a few New Towns which are emerging across the nation. In the strict sense, there are no New Town developments in America, as this phenomenon has been defined in the British experience, because of the lack of an independent economic base to provide economic opportunities within New Town borders for residents. Rather, we find up to 200 "new communities" which are not economically separate entities, but are nevertheless planned to provide a mix of types of housing, commercial and cultural facilities and amenities. * The idea of the New Town encourages a longer-term and more multi-dimensional view of the future of education, because in a conceptual sense (though rarely in practice), a New Town programme is presented with a tabula rasa on which it can paint its own picture of the future.

* Advisory Committee on Intergovernmental Relations, Urban and Rural America: Policies for Future Growth, Washington, D.C.: U.S. Government Printing Office, April 1968, pp. 63-64.

Most new communities in America have paid little significant attention to the possibilities for a thorough-going redesign of the educational system, just as they have paid little attention to alternative future states of affairs throughout society. * Their planning has emphasized mainly architectural and ecological design. In Columbia, Maryland, however (which is located halfway within the forty miles that separate urban Washington, D.C. from urban Baltimore, Maryland), an attempt has been made to relate the planning of an educational model to other considerations of a social, political, economic and ecological nature. ** The planning of Columbia, Maryland, has been comprehensive, as has been the planning of its educational system. The setting of goals involved, over a two-year period, thousands of local citizens in Howard county (a rural, low-density area in which this new community of 150,000 population is now under development). Planning involved a multidisciplinary team of experts, including city managers, public health and education specialists, economists, sociologists, etc. In the educational arena, most of the new technologies and instructional systems have been explored, and the design of the school buildings has focused on maintaining maximum flexibility in the future choice of programmes and teacher-student roles and relationships.

Perhaps of greatest interest has been the attempt to interweave the formal, core school system into the entire matrix and ethos of Columbia so that educational facilities and programmes are available for the continuous learning of the entire community. It has been decided that the schools should become a central focal point for a variety of activities, both formal and informal, and for all kinds of instructional and learning purposes. The actual implementation of this "New Town" is still in an early stage. Six thousand citizens have moved in already, a far cry from the 150,000 anticipated. The entire population of Columbia, in projection, is viewed as a "learning force" to which the formal school system must attempt to be responsive.

Another New Town, working under greater political pressure and socio-economic constraints exerted from its urban environment, is Fort Lincoln New Town to be located within the city limits of Washington, D.C. A serious attempt has been made to conceptualise, at the planning stage, a new and comprehensive system of education. *** The programme has yet to be implemented. What comes through as

* Ibid., Chapter IV, "New Communities in America and Their Objectives".

** From interviews with Dr. Leo Molinaro, President of the American City Corporation, Columbia, Maryland, and members of his staff, and from a site visit.

*** Mario D. Fantini, Milton A. Young and Frieda Douglas, A Design for a New and Relevant System of Education for Fort Lincoln New Town, August 15, 1968, submitted to the Superintendent of Schools, District of Columbia, and the National Capitol Planning Commission, District of Columbia Redevelopment Agency, Washington, D.C.

the salient feature in this conceptualisation is the goal of interweaving education, in all of its teleological, systemic and process features, into the social, economic and political life of the community, both present and future, "to create a new, totally integrated educational system ... responsive to future changes". * As with Columbia, Maryland, the learners and teachers are the citizens of the community in terms of their multiplicity of individual needs and goals. Decisions about instructional technologies, building facilities, teacher roles, curricula, and the like, will be made (it is proposed) in terms of this broad notion that the entire citizenry comprises a total learning force.

Still another attempt, in the pre-planning stage, to view educational possibilities in a comprehensive sense with some focus on the needs of children who will be the adults of tomorrow, is a remarkable document entitled Individualism, Relevance and Innovation, Goals for the Westport School System. ** Prepared by a group of citizens who form the Advisory Committee on School Goals for this public school system in an affluent, ex-urban community in the State of Connecticut, the document has attempted "to identify those major social, political and economic forces which have relevance to the long-term growth and development of the Westport School". ***

In summary, the Committee's detailed assumptions about the probable nature and course of these forces are:

- "the 'knowledge explosion' with its proliferation of 'facts', many of which will have a short life expectancy as they are obsoleted by new knowledge;
- a continued increase in technology, automation and computerisation, with their impact on social institutions and value systems;
- substantial increases in per capita and national income, and a marked stability in economic growth;
- a shift toward professional and services employment, and away from blue-collar work and manufacturing;
- work careers that involve multiple changes in occupation and continuing education;
- changes in attitudes toward money, work, leisure and authority;

* Op. cit., p. 10, emphasis ours.

** Report of the Advisory Committee on School Goals to the Board of Education, Westport, Connecticut, February 1969.

*** Op. cit., p. 1.

- an earlier maturity of children, with a consequent search for responsibility and participation in decisions affecting their lives;
- a heightened emphasis on individualism and pluralism;
- a continuing crisis in race relations and urban problems on the domestic scene;
- growing international interdependence, but a widening of the economic gap between developed and developing nations."

The report goes on to say, "Predictions such as these must be handled with discretion. In the event, many of the details may be proved wrong; and the pace of change is such that new forces may appear on the scene with alarming rapidity. Yet some [emphasis theirs] attempt must be made - and on a continuing [emphasis ours] basis - to anticipate changes on the national (and international scene), and to think through their implications for education and our schools".* The forecasting horizon is 1980. The Advisory Committee attempts to define school goals with sufficient specificity to facilitate evaluation of programme effectiveness in achieving these goals.

The examples of the comprehensive future model in Columbia, Maryland, in Fort Lincoln New Town, and in Westport, Connecticut, well illustrate the other horn of the dilemma raised by the issue of span of control and enquiry. In the case of the pre-planning work of the Eight State Project, there is a large enough regional area of the United States to provide a potential leverage on the larger economic, cultural, ecological and social forces which will determine the future quality of life within that region. This leverage, were it to be exercised, would be by no means complete, for the interdependence of the region with the larger society, and indeed with the rest of the world, is obvious even though the dimensions of that interdependence have never been adequately specified. What is lacking are political and administrative devices to translate the idea of a possibly unique regional quality of life and educating system into policy choice and action. Moreover, for a major (and to a real extent, open-ended) macro-system of that size, it will probably be necessary to devise new analytic tools adequate for planning.

On the other side of the dilemma lie those communities (at present), very few) which possess a cohesiveness of political and administrative structure sufficient for competent planning for the longer-term future of the educating institutions. But they can exercise no significant

* Op. cit., p. 2.

leverage over the forces which will affect their future. The best that can be hoped for are small variations of adjustment to future technological and societal forces over which the communities can exercise no control. Thus, while these smaller subunits of the education complex can attempt to consider a large number of variables exogenous to the traditional concerns of education, the comprehensiveness of their planning effort is severely restricted. In Section III, we shall address these kinds of problems engendered by the futures-perspective.

III

PROBLEMS

Thinking about the future of education in a longer-term and multi-dimensional sense represents, to some degree, an extension of fundamental psychological and institutional behaviour. The preceding review of work underway indicates, however, how far short of a thorough-going analysis of its future possibilities educational planning in the United States falls. If it is desirable to inject a futures-concern into education, the critical issue is how this might be done in a practical way. What kinds of new problems of an organisational, an instrumental and a conceptual nature are engendered by the futures-perspective? What old problems are clarified or exacerbated?

The logic of the argument in Section I states that there are many future possibilities; that the future of education can be viewed as a series of alternatives whose possibilities and desirabilities we must judge and utilize as the basis for explicating the consequences of present policy choices. But to examine the future consequences of these policies, we must imbed them in a future environment whose shape and content are conjectural. There is a circularity here which, nevertheless, we accept because it forms the basis of human choice and action. Having adopted some policy subsequent to an analysis of its consequences in various alternative futures, we would assume that its adoption was due, in part, to our attempt to bring about one, rather than another, of these alternative futures which we have found, after analysis, deliberation and political "discourse", to be more desirable. Thus, we intend to impact upon the future, to invent it, to steer our activities in the direction of one, rather than many other, possible futures.

But every alternative future opens up new directions we might choose to take. On the one hand, the same policy may produce different consequences in different conjectured futures. On the other hand, the likelihood of the emergence of different futures (our "probability

guesses") would appear to make some goals, some values, some qualities of life, some policies more achievable and others less achievable. The issue here is one of "fit". The circularity lies in the fact that we do not only attempt to fit our goals to one of a number of possible particular futures. We shall also, through policy choices, planning and implementation, try to fit the future, which we cannot know or predict, to our goals.

This circularity imposes a tension upon the entire range of activity which we wish to investigate: the polity of education, the policy-making functions within education, and the planning tools which may be utilized to prepare the ground for enlightened choices among a whole range of means-ends trade-offs. In considering what these problems might be, we have not restricted ourselves to a sole concern with the planning activity. In the education complex, the use of sophisticated planning tools, indeed the whole idea of planning, is by no means accepted throughout the system. Moreover, if planning is to be wedded to the more thorough investigation of the future, it would seem crucial to understand how the polity of American education might react to and participate in this deliberation. We do not see how, in the context of a futures-concern, it is possible to consider educational planning problems without taking into account the political and policy-making environment which must set planning goals and utilize planning products.

The three elements of educational polity, policy and planning are inextricably bound together by the "political" linkages within the education complex. By this we do not mean political parties or partisan politics. The political character of American education is less formalized and less accepted - in the public eye - than the process of competition among patronage parties for elective office. A fundamental ideological characteristic of American education is its formal separation from partisan politics. "Keep politics out of schools" is an accepted shibboleth. But it has crept in again, through every nook and cranny of the system, because the suppliers and the beneficiaries (the parent groups, the professional associations, the clients and consumers) are all caught up in what happens in American education. Perhaps the most important definition of the "crisis" in American education is that millions of citizens, in a multiplicity of roles and organisations, believe that education is in crisis and attempt to define and offer solutions to it. We must then consider what kinds of problems a futures-orientation might raise not only for technical planning, but also for the whole process of setting educational policies and for the pluralistic polity of education within which these policies will be accepted, modified or denied.

A. PROBLEMS IN THE POLITY*

The American educational polity starts with a group of suppliers (of educational ideas, goals, techniques and material-financial resources) of users (which will include students, teachers, administrators and beneficiaries (which may include parent groups, professional and institutional associations, employing organisations and the like). All of these are active parts of the dynamic complex. A particular individual, group of individuals, or even an institutional unit may move from one to another position with respect to the system, thus taking on different roles and functions, with that particular ease and fluidity of role-shift which characterizes the highly specialized modern state of affairs in any complex institutional order. In doing so, their interests change. Under conditions of relative system stability, and where the exogenous environment is also relatively stable, this proliferation of and shift among roles and interests is manageable through a complicated and extensive, but nevertheless legitimized, web of governance which facilitates exchanges among all of the individuals and groups in the complex.

It is on the basis of their participation in or extraction from the system that one can designate the members of the polity of education. Tradition, equitable exchange of benefits (so perceived) and a legitimized power structure enable the polity to support the goals and programmes which define the directions in which the educating system is moving. But if there is a dysfunction within the complex, or a disequilibrium (a tension) across the interfaces of education and its larger societal environment, the polity may begin to fragment.**

* These remarks on the educational polity are restricted to the American scene. That restriction is of paramount importance. Other countries may not only possess a more centralized apparatus for policy-making and planning; they may also possess a much less disaggregated educational polity than in the United States. These two situations raise different sets of questions. A country, for example, which has recently embarked upon the new development of a public education system will probably possess a remarkably circumscribed polity for its new educational programme, though as that programme expands, and, indeed, perhaps as a measure of its success, the polity may also expand and set its own limits and assign its own significance to the goals, the inputs, and the outputs of the burgeoning system. One might indeed anticipate a heightened sense of educational crisis in a country among an increasing portion of the population just to the extent to which a larger portion of the population becomes drawn into the system, as students (both adult and youth), and as suppliers, or, most importantly, as potential beneficiaries whose educational aspirations outrun available educational resources.

** Fragmentation in the polity has happened more than once in history: for example, when the immigration of foreigners to American shores reached so substantial a portion of the populace concentrated in major urban centres, grave questions arose as to the social and human purposes for which education was to be understood, as to the effectiveness of then-existing educating institutions and programmes to achieve these purposes, and as to the propriety and legitimacy of various new or non-traditional suppliers, users, and beneficiaries participating in the policy-formulation process out of which would emerge answers to these questions. See Lawrence Cremin, The Transformation of the School, New York: Alfred A. Knopf, 1961, pp. 66-75.

As McClellan has pointed out, the idea of polity assumes the willingness and capability of its members (as individuals and as institutions/organisations, and irrespective of their special role and interests in the system) to engage in a common, rational discourse about the ends and means of education (its goals, its programme alternatives) on the basis of some shared and common understandings about the procedures by which policy is to be formed. *

Note that it is not necessary to achieve consensus either with respect to the content of educational goals, or with respect to alternative educational strategies, to achieve these goals. What is needed is agreement as to the basis on which the discussion, the analysis, the determinations will take place, and agreement as to which kinds of educational issues to disagree about. It is a special kind of universe of discourse which permits and facilitates consensus about disagreement. Change, produced within or outside the system, often results in a fragmentation of that universe, which is what we see increasingly in American education today.

One major problem is whether a consideration of future alternatives may further fragment an already fragmenting polity. Were this to occur, it would reduce for a time the minimum common understandings (expectations) without which it is difficult for so complex a system to go about its business in a more or less orderly fashion. If futures-thinking becomes both more systematized and more pervasive it may well cause a sharpening of value-conflicts and interest conflicts.

In a stable and tradition-oriented educating system, these conflicts tend to be hidden beneath certain generalities. Goals for education are quite often stated at such a level of generality (e.g. equal opportunity for all, or maximization of human potential, or the proper balance between intellectual and emotional development, or the development of economically-productive and employable skills) that they cannot be achieved. They cannot provide a basis for formulating trade-offs between courses of action. They do not permit effective programme evaluation. They tend to hide dissatisfactions and disagreements with the system's outputs. Generalized educational goals are no doubt permissible in an educating system which is not under challenge to adapt itself to new needs generated by changing environmental conditions. The system is then, by definition, in a state of equilibrium: planning and policy can deal with minutiae. But the polity is fragmenting.

Challenges to the goals of education, to specific programme content and teaching practices, to the ways school systems and universities are

* James E. McClellan, Towards an Effective Critique of American Education, Lippincott, Philadelphia, Pa., 1968.

organised and controlled, are now everyday occurrences. In times of equilibrium and stability, in which resources available for inputs are in balance with accepted magnitudes and qualities of outputs, generalized educational goals suffice to rationalize the on-going system. But where there are severe shortages of resources, or disagreements over the portion of total resources to be allocated to education, or where either the quality or magnitude of outputs is considered unsatisfactory by client groups: under such circumstances, as would now appear to prevail in America, generalized goal statements no longer suffice. Not only are they inadequate for planning and decision-making; they also disfigure the real issues, either by covering them over (pretending a consensus where none exists) or by blocking the lines of communication and feedback among various elements in the polity, including between the official apparatus and the client groups.

It is clear that an increasingly widespread sense of a changing world is not only fomenting challenge to revealed wisdom and inherited truth extracted from the past; it is also fomenting challenge to established authority in the educational system. Increasing pressures to participate in the decision-making network are being generated by various sets of claimants who do not appear to share a uniform set of values about, and goals for education. Organisational authority and arrangements have begun to fracture under pressures from student groups, black militancy, parental groups, tax-payer groups, etc. This is a consequence of the fragmentation of the polity. By offering alternatives, the futures-perspective may exacerbate this challenge to constituted authority. It may produce a more whole-scale consideration of where such authority should be lodged, and of what kinds of groups are to share in the polity, including those groups which now demand such participation, sometimes by resorting to violence.

Part of this question centres around the performance of formal, core institutions of education in a time of challenge and change, about which we might begin to speculate. Part of the answer would seem to lie in looking at trends in the domain of education. For example, at what stage, and by what criteria, will the pervasive influence of commercial television be considered an instrument of education? At what stage will the new focus on problems of early-learners shift attention from formal pedagogy and instructional methods to nutritional and psychological inputs during pre-school childhood? What are the conditions under which the publication and dissemination of underground newspapers and journals produced by students would be considered an important kind of learning? What are the future criteria for determining the educational aspects of sabbaticals taken by factory workers? What is the likelihood and consequence of shifting religious education (or education about religion) from the domain of the church to the domain of secular institutions? Which sets of institutions shall pay

attention to specialized occupational training: the core schools, the employing organisations, others?

In short, what kinds of institutions, old and new, might most effectively do the educating? The futures-approach requires a careful extrapolation of present institutional trends. It also requires systematic conjecturing about possible solutions to institutional problems caused by societal redefinitions of the domain of education. Twenty years from now, when we talk about education, what will be the content and focus of our discussion? But the question - under what kinds of institutional arrangements in the core and the periphery might education take place - has consequences for the present behaviour of core institutions now charged with much of the responsibility for educating. This kind of conjecture may well call into question the efficacy and even the perpetuation of historically sacrosanct institutional arrangements and organisational subsystems.

In Section I(C), we indicated that a multitude of new institutional arrangements have been established to cope with educational problems arising from the failure of formal, core school systems to provide effective learning for members of minority groups - the so-called "poverty programmes". These programmes have expended hundred of million of dollars. They have provided an opportunity for testing many new instructional motifs, programmed materials, electronic teaching aides, recruitment, testing and educational management techniques, new teaching roles and functions and the employment of persons not always certified by the professional credentials' system of the core institutions. There have been efforts to evaluate results as compared with intentions. Are specified output targets being met, and, if not, why not? What kinds of learning are occurring through what kinds of programmes and under what kinds of conditions? A new kind of accountability has thus begun to creep into education by way of new institutions at the periphery. These kinds of innovations will inevitably raise questions of the feasibility and desirability of shifting an increasing portion of the burden of formal, core education to profit-making and/or community-organised institutions outside of the traditional school system, particularly for those groups of students whose parents express dissatisfaction with the performance of the traditional, core institutions.

In what ways, then, and to what extent can one expect persons and institutions charged with the formal responsibility for education decisions to call into question, to a greater or lesser extent, their justification for existence? What use would such an arrangement of people and institutions make of a series of alternative educational possibilities provided by a "surmising forum" of experts, if the alternative scenarios included some which appeared to violate the self-interests of existing institutional arrangements?

In part, the problem lies in the area of institutional maintenance and change. Organisational change, from a behavioural viewpoint, within the core system of education has been a slow process. It will be, in the very least, extremely difficult for the formal educating institutions, en masse, to begin the arduous task of consciously self-imposed re-examination and change, to the extent to which their view of their institutional future may call for it. It would appear much more likely, in the short run, that new institutions and organisations will emerge and engage in types of educating activities which the older, more traditional institutions cannot do, and therefore exist parallel to the core.

The futures-perspective may well require a much more intensive effort in developing new communications mechanisms for facilitating the development of reasonable dialogues about educational goals among different groups in the polity. One real possibility is that no over-all society-wide polity may emerge. Differences of perspective, life-style and experience may become intensified by giving clarity to the future implications of present disagreements. Another way of putting it is that alternative futures may rank differently on different preference scales. And one requirement for translating conjectures about future educational alternatives into present policy choices is to adequately define preference scales on the basis of which alternative goals and their future consequences can indeed be evaluated.

But can a complex, interlocked, technologically advanced society of increasing population density permit significant differences in life-styles and, therefore, significant differences in modes of education? Increased societal tolerance of institutional and programmatic differences and even contradictions within the educational order may be called for if a systematic and pervasive consideration of future alternatives is taken seriously and injected into current policy issues and debates.

The futures-perspective, and all of the forecasting, analytic and valuation work that goes with it, is in itself solely a theoretical exercise unless the political nexus for educational decision-making is prepared to utilize the results of this work. To put it another way, there is a behavioural component to the futures-perspective. We have attempted to locate that component in the behaviour of the educational polity, which is fragmenting under pressures generated at least as much from outside the domain of education as from within it. But an attempt to view the long-term, multi-dimensional future of education may assist in clarifying for the polity, in its fragmented state, what the calculable consequences of different educational goals and programmes are. It would help specify the meanings of alternative definitions of the qualities of life which support and which might be sought

after through alternative educational arrangements. Viewing the future as a series of alternatives might help reconstitute the polity, but one of its new forms may be a series of polities paralleling a series of alternative modes of education, formal and informal, adult and youth, credentials-oriented and learning-oriented, occupation-oriented and self-fulfillment-oriented.

If and when the educational polity begins to speculate about the future, what will be the climate for acceptance of diversity and social contradiction within the short-term? Such diversity in modes of education has already begun to emerge. Technology clearly can promote diversity as well as uniformity and monotony. In the field of mass communications, for example, the invention of off-set printing has facilitated the emergence of a sometimes crude, often imaginative group of publications (the underground) which parallels the more oligopolistic, interlocking official wire services and newspapers. The increasingly cheap, mass production of tape recorders makes possible forms of learning which also run parallel but counter to the formal institutions of schooling. Futuristic designs for information dispersal networks, briefly described in the section on the technological future, clearly afford such opportunities for diversity, although also for totalitarian uniformity in the content and objectives of an electronic learning age.

The point at issue here is whether different versions of the future held by different groups in the society would result in irreconcilable and disruptive conflicts about educational goals and strategies. Conflict is not the same as diversity. But the latter can produce the former under various conditions; for example, general strain in the entire social fabric, cataclysmic events of a natural or man-made order, increasing or extreme shortage of key resources, institutional rigidity, repressive acts by the constituted authority, and/or violence in support of client demands, etc. The rebuilding of the educational polity would appear to require, therefore, the utilization of existing and the invention of new mechanisms for conflict resolution.

One of the serious problems in American education today is that various groups, both within and outside the traditional hierarchy of constituted authority (e. g. school and university administrators, teachers unions, student groups, parent organisations), have a hard time listening to each other. They find it difficult to articulate real and significant differences of value, goal, experience and need amongst themselves. The futures-perspective, we believe, will tend to "force" greater clarity along all of these lines. But it will create new and magnify already existing problems in the polity of education, which then must be anticipated and mechanisms developed for dealing with them.

B. PROBLEMS IN POLICY-FORMULATION: WHEN, WHERE AND HOW TO MAKE INTERVENTIONS

Given a set of alternative possibilities for future developments in education, the task of policy-formulation is, as always, one of making choices. By accepting the futures-perspective, the policy-making function must rely upon the analysis of futures history. Little futures-history has been written for education. The techniques, it would seem, are basically similar to the techniques of the historian of the past: the examination of "data" on the basis of which an attempt is made to define sequential relationships among events according to some theory of social causality. In reviewing a set of alternative futures, the policy-making process attempts to identify a particular alternative (a configuration of a set of possibilities) which is more, rather than less, desirable to see come about. It is the future we would like to invent were it within our capacity to do so. But that alternative is in the future, and policy-making is in the present. Traditionally, the policy-maker is concerned with getting from A to B, if A is the present and B is a particular desirable future.

The future historian asks the question differently. He posts himself at B, in the future, at some given time, defined and described as systematically and clearly as possible. First, he has to look back into the figurative "past", some twenty, thirty, or more years to the actual present, and ask what had to happen between 1969 (if that is "A") and 1990 (if that is "B") such that A, through the infinitely complicated sequence of events we call social change, would lead to B. In the most fundamental sense, planning for the future is the writing of futures-history.

The second task of the futures-historian (or planner) is to identify particular points in the complex sequence of imagined events which he judges to be crucial. Often, they are crisis points, where two or more trends come into serious conflict. Something has to give. If it will be possible to forecast such crisis points, through writing futures-history, these then become the points for intervention: for taking some action on the basis of which there might be a better chance for a shift in directions toward the desirable future. The futures-historian performs the analysis. But it is in the policy-making function that the responsibility to decide whether or not to intervene is located.

But while systematically explicating alternative futures-pictures, specifying educational goals, and analysing futures-history, we must not neglect to describe adequately the state of affairs in the present. Planners, in and outside of education, always emphasize the need to know where they are starting from. What are the "facts"? What is

the reality of the present (which means the more recent past)? What are the critical dimensions of the present we must understand if we are to inject into the futures-perspective an understanding of present trends? These are questions worthy of a great deal of continuing research and investigation. Particularly in the field of education, there is much "sound and fury" and little hard data, especially in those areas of the complex which have not come under the scrutiny of the officialdom of the system. What we are talking about here is the necessity for developing a more complete and sophisticated set of "social indicators" which tell us what is happening in education which may be critical to speculating about the future.

Consider, for example, different degrees of client satisfaction with educational outputs. What are the facts? Until recently, the official administrative apparatus was not aware of the degree of client dissatisfaction with aspects of the system. This was not considered worth knowing. Now it is; and so we have an increasing amount of research directed towards the rate, the size, and the meaning of dropping out of school. We need to know a great deal more about a significant number of social behaviours and events if we are to rest more securely in our knowledge of what is happening in the education complex, to serve as at least a partial basis for conjecturing about what might happen in the future. For example, are institutional consortia in higher education on the increase? What are the numbers of students participating on Boards of Trustees and in academic senates, and on how many campuses? How many college students live at home, in dormitories, elsewhere; and is there any shift in these figures over the past decade? How many non-professionals are serving in elementary and secondary classrooms as teacher aides? How many bond issues to finance capital construction have been voted on ... and adopted or voted down during a significant period of the recent past? How many schools are extending the use of their facilities beyond the normal six-to-seven hour class schedule ... and how many for non-credentials activities ... and for what purposes? How many schools and universities are using computers to help manage administrative details, such as scheduling of students, teachers, and classrooms, the keeping of records, etc. ? What is the number of educational parks in existence ... funded but not constructed ... planned but not yet funded?

A carefully analysed futures-histor ought to indicate areas of behaviour and configurations of social forces, both within and outside the educational domain, which will require intensive investigation. Demographic and economic data, of the kind usually used by educational planners, may turn out to be no more critical for effective planning and policy formulation than other kinds of data.

The problem of when, where, and how to make interventions is located at the point where the specifics of planning and the definition of goals in the educational polity come together. It represents the point at which educational policy gets translated into action. Goal specification, choosing among alternative goal mixes, delineation of their consequences in alternative futures, the analysis of futures-history, the specification of trade-offs among alternative means-ends strategies: these come into focus when policy decisions are taken to insert specific actions into an extremely complex sequence of events whose dimensions we can only partially know. The problem of interventions is basic to the policy-making function, irrespective of a futures-perspective. But that perspective exacerbates the problem.

For example, one of the chief problems in policy-making is the need to monitor the effects of the policy (i. e. the interventions) in order to ascertain the degree of their success. The short-term perspective provides a time dimension within which such monitoring is possible. But programme evaluation, which is one kind of monitoring, becomes extremely difficult when programme outputs are targeted over the ten or twenty-year period, or even longer. The process of feeding in evaluation for a reconsideration of strategy and the selection of new intervention points is a cybernetic loop which becomes lengthened and stretched the longer into the future we cast our net.

This stretching of the time-perspective reduces the capacity of policy to have any significant impact upon the longer-term course of events. The uncertainty quotient is increased exponentially. But such an eventuality represents the very antithesis of the idea of policy-formulation and planning, whose purposes are just the opposite; i. e. to increase the impression of certainty and the likelihood of control, at least in the short-run.

The solution to the problem is critical. Yet the art of futures-thinking is still very much at the stage of problem identification. It will require greatly increased inputs of analysis and experience before we are in a position to define solutions. In the short-term, cost-benefit and cost-effectiveness analysis, supported by the tools of operations research, may help; though in the realm of education, even these tools are greatly underemployed. Measurement of effects and specification of targets, critical to the entire policy-monitoring and programme-evaluation process, are difficult enough when applied to the qualitative character of educational goals, even in the present. As we transpose these goals into the longer-term, by attempting to define what their consequences might be within alternative scenarios of the future, we exacerbate the problem.

Perhaps the most important contribution of Delphi forecasting and the employment of cross-impact matrix is that they "force" the specificity of surmises which might otherwise deal with the future only in terms of generalities; i. e. broad social trends and qualitative definitions. The use of these methods requires that the participants identify and define the "indicators", the events, and the probabilities of their occurrence in terms clearly understood by every person engaged in the exercise.

Similarly, policies and strategies must be translated into specific, sequential tactics of implementation. This translation moves the policy focus from general futures and general goals (overarching values) to specific futures and specific goals (educational objectives), which are then juxtaposed against present conditions in the education complex. Futures-history describes various paths to move from the present into the future (e. g. the "present" of twenty years hence). Effective long-term planning attempts to outline the crisis points at which trends and expectations come into closer conflict along these very paths, which of course represent an extraordinary, complex and interlocking sequences of eventualities. Policy-making then "chooses" which of these paths to follow, and selects the specific points in place and time when interventions might be made. It defines the interventions (specific steps in an overall programme strategy) on the basis of their longer-term consequences. But the demand on policy to monitor its effects will require that the interventions be made incrementally. That is, they will be selected on the basis of incremental effects whose impacts are calculated to build gradually over time, rather than causing more gross shifts in educational behaviours. This represents a kind of "hedging of bets" about the future. It requires a great deal of flexibility both on the part of the polity, the policy-makers, and the planners. For each succeeding year, we are one year closer to a targeted future, which is another way of saying that each year both our knowledge of the present and recent past (e. g. the development of social indicators) has hopefully increased, and our conjectures about the future have multiplied further as we become more skilled in methodology and interpretation. Thus, we may be required to shift from one to another path into the future, as trends become more fully understood, and effects get evaluated.

It may be argued that this approach makes sense (if it does at all) only when the educational policy is in agreement over purposes and goals, or when there is no crisis in education. Crisis, it is argued, requires bold, perhaps revolutionary, change. But the non-centralized, conflict-laden character of the education complex may be just the kind of environment in which a variety of policy choices and innovations become possible, including a mix of the radical and the incremental. The political problem, of course, is who shall calculate and make the

interventions, with what kind of legitimation, and on the basis of what kinds of agreements within the polity. A system which abjures centralized planning and distrusts centralized policy-making is also a system which must rely upon widely dispersed policy strengths: new regional systems, the state departments of education, the thousands of school districts, the private and parochial schools and universities, the burgeoning programmes of education outside the formal core of the complex.

One of the graver questions such an approach raises lies in the developing impact and use of educational technology, and the technologies of architecture and school design, of communications and transportation, and of applied bio-medical research. Can technology be applied to increase the likelihood of diversity and multiplicity in education, or will it promote a single future alternative? That is a special case of the more general question about the impact of technology on social life. Generally, the technological futurists believe that technology will solve the social ills of the present (hunger, social deprivation, resource scarcity, and the like). But they tend to slight problems which accrue because of human idiosyncrasy and societal diversity. Yet technology can be, or could be, a powerful weapon to promote the implementation of a variety of educational alternatives. This possibility may not occur, however, unless we begin to conjecture about the character of these alternatives and decide to what extent they are worth reaching for. The issue is not technology, per se, but for what purposes it may be used.

C. PROBLEMS IN PLANNING

There are three areas of problems which come to the force when considering the implications of the futures-perspective for educational planning. These are so-called "technical" problems; i. e. those which pertain to the logic of planning; the administrative problems, which raise the question of where within the education complex a capacity for futures-casting ought to be more formally located; and, finally, socio-psychological problems, which address themselves to the question of the states of mind more or less appropriate to the cognitive activity of forecasting and speculation.

There are two technical problems. First, the futures-perspective requires educational planning to deal with exogenous as well as endogenous variables, particularly because questions about the future domain of education require one to look much more carefully and imaginatively at the blurred boundaries between core and periphery, formal and informal educating activities and institutions. Secondly,

the futures-perspective starts with the future rather than the present. A series of carefully explicated educational and societal futures are taken as given and serve as the basis for the analysis of what we have called futures-history. Futures-history starts with an assumed future (one among many possible futures) and attempts to trace out the number of alternative pathways by which it can be said to have (figuratively) come about.

Given these alternative pathways, the task of planning is to identify, for policy-making, the critical points along these continua where carefully calculated interventions may most effectively mediate between the present and the future. Thus, there is a continuous need for flexibility, for adjudication, between new interpretations of our expectations and intentions (i.e. redefinitions of educational goals), new forecasts on future probabilities, and careful evaluation of the effectiveness of interventions so far undertaken. But this evaluation is more than programme evaluation, per se. It also requires re-evaluation of the future consequences of these interventions as speculations about the future itself change over time.

Futures-planning will possess a cybernetic style, a circularity to which we referred before in a parallel context. The task of planning, then, is to help fit the present to the future, by enquiring into the conditions under which the long-term effects of education might possess relevance for the larger future environment. But since these environments (or scenarios) are conjectured and not predictable, we are confronted with the task of valuing them on some preference scale, according to the mix of value systems in the society or within the educational polity, and then attempting to fit the future to the present definition of a desirable future. Some of the planning techniques which can do this probably exist but have not been put together to form an integrated set of procedures. Existing instruments, such as simulation-gaming, operations research, systems analysis, Delphi techniques, and the cross-impact matrix may well be essential components of this planning approach. New tools, such as futures-history, will have to be added. For the moment, let us call this kind of activity rolling planning to convey a sense of flexibility, circularity, and wave-like progression. It is distinguished from current attempts at educational planning in America, which tend to select one particular scenario of the future according to the models described in Section II. The selection of a single, alternative in the domain of education has far-reaching and long-term effects. Consider, for example, investments in school construction, in curriculum change, in teacher training, in capital-intensive instructional technology. The outputs, which consist in part of constellations of skills, knowledge and attitudes, are explicated over a longer period; the investments take a longer time to be recouped; the pay-offs occur in some future which may be two or more

decades hence. What is required is to attempt, by a series of approximations, to come close to the balance point between over-rigidity and inflexibility in educational planning, on the one hand, and extreme flexibility degenerating into chaotic, over-reacting, non-purposive behaviour, on the other.

One powerful objective for educational technology and social invention would be to reduce the size of financial, material, institutional and human investments in education so that the longer-term character of the investment is shortened. It may also be necessary to change accounting procedures so that faster write-offs of financial investments can occur. Not the least of what will be required lies in the difficult area of continuous institutional reform and renewal, and in encouraging the creation of new institutions for educating, complementary, perhaps even contradictory, to existing institutions. Finally, the current thesis so much discussed in educational circles of "lifelong learning" and "learning how to learn" may represent another way of dealing with these kinds of problems. A great deal more research, conceptual formulation and experience will be needed, however, before we clearly understand what those terms mean.

The critical administrative issue is where, within the policy/administrative apparatus of educational structures, to locate the functions of futures-casting and the analysis of futures-history. It is unlikely that futures-casting will be restricted to one or a small group of "research" organisations. There is no legal or political basis for restricting this activity to a select group of government forecasters, for example, even were such a strategem consistent with the values of a free society, which it is not. A healthy competition and co-operation among futures-casting organisations will probably much better reflect diversities of intentions and expectations. It is becoming clear, however, that the development of a surmising forum, as de Jouvenel called it, requires a certain degree of sophistication in the use of new techniques for systematic speculation and projection, which in turn would imply the necessity for a resource-investment beyond the capacity of many, though not all, of the subunits and subsystems of the education complex.

The problem, actually, has two aspects, for we shall need futures-casting about the general societal environment, including therefore technological developments and impacts, and futures-casting about education. While the two are integrally related, as we have attempted to demonstrate, nevertheless the former requires a broad-band focus, while the latter concentrates on narrower, though nonetheless wide enough, areas. Moreover, one might anticipate that the explication of alternative social and technological scenarios, and the writing of general futures-history, will be useful for all domains of human activity

and not just for education. There is scarcely an institutional order in the society or sector of the economy, together with all of their organisations, whose policy and planning activities might not be informed and illuminated by the futures-perspective. We see no reason why this general function, then, should be limited to and located only in the educational domain. The development of surmising forums may be forecast for any sector or institutional order where longer-term consequences of present actions are of interest, and which have the resources to finance a group of professionals to develop methodological techniques for the gathering and analysis of "data" on the future.

We would anticipate the creation of organisations operating either for profit or supported by public or philanthropic funds (such a mix almost always occurs in the United States) whose special focus is the broader dimension of the future. Similarly, we might expect the birth of more than the presently existing two policy research institutes which possess a special focus on educational futures. The Educational Policy Research Center at Syracuse and the Educational Policy Research Center at Stanford, both supported by the United States Office of Education, possess a broad mission to consider the general domain of education in the futures-perspective. The problem which emerges is the necessity to extend throughout the complex a capability and interest to engage in futures-casting for education, to analyse futures-history, and to utilize the fruits of such work at the subsystem and subunit level. If, over the longer-term, this extension does not occur, then it will hinder the development of regional, subregional and local diversity within educational innovation and experimentation.

What we do not yet know is the extent to which it will make sense to attempt regional futures-casting. What are the variables within a geographic region, a single state, a metropolitan area which might give to their possible futures a special flavour within the larger society? Some of the work of the Eight-State Project suggests that both economic, demographic and metropolitan growth forecasts might well differ from one region of the country to another. Will goals, intentions and qualities of life also differ? The question of span of futures-casting is much related to administrative/political questions of span of control. A major objective of present organisations in the field is to disseminate as widely as possible a general familiarity with the futures-perspective and competence in the techniques.

From the more formal administrative viewpoint, the futures-perspective capability should be protected from demands for particular "forecasts" made by the policy apparatus in the parent organisation or subsystem. The dangers of self-fulfilling prophecy in the art of futures-casting are obvious, though not yet sufficiently understood to identify the extent to which a particular set of forecasts offered by an

individual will influence the focus of policy. Still, intention is the mother of expectation. Research is now underway to attempt to develop the methodology for handling this particular problem. Nor should we forget that the systematic articulation of intentions, as well as expectations, is a critical aspect of futures-casting. This is particularly true in education because of the necessity to explicate and define, within the educational polities, the goals and values which prevail and which may come into existence given changes in technology, culture and symbolic behaviour.

Thus, two operational caveats might be suggested. The first is the desirability of protecting the futures-casters, as an administrative entity, from ideological and policy demands subtly or clearly imposed upon them by their administrative superiors, or by those organisations, governmental or philanthropic, who finance such an enterprise.

Second, and more important, is the desirability, indeed the necessity, of making available to the general public the products of futures-casting, the alternative educational scenarios, and the futures-history analysis and policy analysis which follow. Included in this rule is the recognition that along with the material itself must go a straightforward account of who are the "experts" or other persons whose forecasts were utilized, the kinds of methodologies employed, together with a description of their strengths and weaknesses (i.e. their reliability), what uses might be made of such material, and a general account of the philosophy of the futures-perspective. This task of dissemination and translation may not be easy to accomplish, but to restrict it because of presumed problems in its interpretation and employment would be to negate fundamental values of the society.

We have already suggested (Section I(B) that the futures-perspective raises the overriding question of how human beings and organisations may most effectively deal with ambiguity and uncertainty. We must now consider, from the psychological viewpoint, the question of what kind of human behaviour is involved in the forecasting and futures-casting activity.* Is it, for example, different from cognitive behaviour which deals with the present? Weaver suggests that, "Perhaps the major distinction between future cognition and thinking about the present or past is the degree to which judgment can be based on data-supported inferences. Future cognition limits data-supported inference because of the uncertainty and unknowable nature of the future".**

* The following discussion draws heavily on the work of W. Timothy Weaver, Research Associate at the Educational Policy Research Center. He undertook a major study, concluding in the submission of a Doctoral Dissertation in May 1969, which attempted to provide a conceptual and empirical basis for defining and predicting different types of forecasting behaviour. Forecasting and Forecasters - What is Expertise? EPRC Working Draft, April 1969.

** Weaver, op. cit., p. 5.

The use of "experts" in the Delphi method, and indeed the role of the professional, highly-skilled person engaged in any kind of forecasting behaviour, raises the operational question of whether a focus on the future requires some particular cognitive styles and belief sets which may not be evenly distributed within a given population, or even among a group of planners and other experts who may become involved in the forecasting activity. If it will be possible to isolate and define these styles, then we will have to confront the questions of recruiting, selecting and training for the special set of activities involved in planning for a longer-term, multi-dimensional future.

Weaver's research suggests that in two aspects of thinking about the future, as distinguished from thinking about the past and present (i. e. projection beyond the immediacy of observable reality and generating alternatives), there are differences among individuals. He has developed a model based upon the cognitive behaviours of: a) projection, b) foreseeing alternatives, and c) drawing conclusions in the absence of facts (which is defined as one's tolerance for acting under highly ambiguous and uncertain conditions) which "appear to be relevant to the entire tradition of research dealing with open and closed mindedness". * [emphasis ours]. Weaver's conceptual model leads to the assertion that closed-mindedness (defined as the integratively simple, concrete style) as typically distinguished from open-mindedness (defined as abstract, integratively complex) disposes towards a more rigid cognitive style. In other words, such persons develop: "fewer future alternatives and fewer insights into relationships among alternatives and effects; more narrow ranges of dates assigned in forecasting occurrences of alternative future events". ** The empirical research conducted to test these assertions suggests that the fullest elaboration of the futures-perspective will require the utilization of persons who are characterized as open-minded, who can deal comfortably with ambiguity and uncertainty, who can generate their own "data" about the future beyond the limits and confines of empirically-based knowledge, and who can create, through conjecture, a larger number of alternative scenarios. This research also raises tough questions about the interpretation of results obtained from the Delphi technique, which is generally employed to develop concensus among a

* Weaver, op. cit., p. 7.

** Weaver, op. cit., p. 10. Integratively simple persons tend to be more narrow than complex persons of future estimation tasks in the presence of cues (e.g. forecasting data generated by other people). However, in the absence of cues, simpler persons become quite inconsistent, while more complex persons change their bahaviour very little.

group of persons engaged in forecasting dates and probabilities of occurrence of specific sets of events. *

From the practical viewpoint, this initial research leads us directly into the difficult question of what kinds of persons, in socio-psychological terms, may be better equipped to perform the kinds of activities we have described in earlier sections. It presses strongly for further research to identify the kinds of personality types which can more effectively engage in futures-casting, in the analysis of futures-history, and in rolling planning.

Certain administrative questions are suggested. Will it be necessary, and possible, to reorganise the administration of planning in order to more clearly distinguish among certain kinds of activities and in order to recruit, select, and/or train different kinds of people to perform these different activities? In terms of role-differentiation, will it be useful to distinguish among the following: i) the day-to-day implementer of educational change, ii) the short-term planner of complex sequences of minute interventions, iii) the "objective" evaluator of the consequences and effectiveness of short-term planning and implementation - these might be considered one major category of administrative functions and roles - and iv) the open-minded, relaxed, imaginative planning and policy analyst who can deal comfortably with uncertainty, ambiguity, the long-term conjecture, and the proliferation of alternative future possibilities?

We recognize the naivity of these questions, both from the viewpoint of their definitional vagueness and from the viewpoint of assuming a degree of rationality and control in the administrative and personnel processes of the education complex which experience does not support? On the other hand, continuing empirical research and conceptual formulation along these lines may begin to suggest new and alternative models for the selection and training of administrators and planners who might begin to apply the futures-perspective to policy, planning, and implementation functions in the domain of education and in the dynamics of educational change.

* Of the basic assumptions of Delphi, two seem to be particularly in need of rigourous testing. First, the assumption that consensus means plausibility for group conjectures is, on the surface, contrary to accepted use of scientific judgment. Judgment is normally deemed plausible when estimating, ranking, rating, etc., are done independently but still produce consistent results. Delphi forces consensus-seeking behaviour. The question is, what kinds of people are influenced by consensus-forcing conditions, and how do their responses affect over-all results? Second, Delphi principles place heavy emphasis on "cool analysis" by the expert; i.e. logic and fairness of choice with minimal influence of the desirability of the future event in question. Weaver's research suggests that the abstract person (presumably the "expert") is more likely to let desirability influence estimates of occurrence of future events than concrete persons. W. Timothy Weaver, Forecasting Events Relevant to Education: Some Effects of Conceptual Level on Estimating and Predicting, Doctoral Dissertation, Syracuse University, 1969.

POSTSCRIPT

(Notes on Using the Futures-Perspective in Educating for the Future)

One is inevitably confronted with the reality of futures-thinking. The question lies at a more profound level of enquiry than operational questions. What is futures-thinking? What does it do for us, as human beings? The question is of the same order, and perhaps susceptible to the same kind of analysis, as the question: for what human purposes is education to be understood? Indeed, the exploration of the significance of the futures-perspective for educational activity (or for the activity in any domain of organised human conduct) may well serve as a powerful way of getting at the fundamental questions of the meaning and purpose of education.

Throughout this paper, we have used the terminology of the futures-perspective as if the words stood for a reality "out there" in the future. That is the shorthand which the written language of communication impels us to use. But indeed, such phrases as "alternative futures" represent a mental construct, a metaphorical way of saying something in shorthand which, on further analysis, has no existential reality. When the "future" possesses an empirical base, when its content has the hard reality of social events and individual actions, when it is factual, we have moved forward, or backward, in time. The future has become the present, which is itself a fleeting moment of impressions which we can analyse and come to know only as the past, whether of a moment or a century.

This might suggest that the reason for engaging in essentially a metaphorical activity (however systematic and analytic may be our methods for so doing) lies very much in the present. By engaging in futures-thinking, we are, in reality, formulating new and perhaps more effective ways to deal with the ever-present questions and behaviours of human judgment and choice. Were we to know the future;

were the future to be determined by the previous course of history which, were our knowledge of the past complete enough, we might predict: in such a case, the reason for our wanting to know and predict could only lie in our possible wish to change that future, to alter the course of human events. But that desire to change the future inevitably raises the question, change it to what? And upon further elaboration of the argument, we would soon reach the point of asking what are the bases, socio-psychological and moral, which place us in the position of finding one rather than another state of affairs more desirable, more attractive, more praiseworthy.

In other words, the futures-perspective may serve to better inform and illuminate the content and the skill of practical judgment, whereby we attempt to choose, among a host of alternative possibilities, many humdrum and unimportant, but some of more profound consequence. The art of practical judgment, of making sound and effective choices whose consequences we are prepared to accept, requires us to attempt to understand, through conjecture, what these consequences might turn out to be. Such consequences of human action and choice lie in the future - that is to say, in what we imagine, intend, and expect the future to be when it has become the present.

The implications of this analysis for education are important and untested. We can only surmise that the escalating rapidity of change along all fronts challenges the theory that the institutions of education and the process of learning are now best rationalized by the need for adaptive socialization in human society by which the newborn are formed into acceptable, participating members of adult society. The argument does not rest on a challenge to the thesis that education is a special form of socialization, even in modern, complex societies. It states that no longer is such a thesis sufficient. It states that change requires choice; that choice assumes alternatives to choose among; and that alternatives emerge because of the diversity of our expectations about what the future will be like, and of our intentions of what the future should be like.

It may be that the futures-perspective should be incorporated into educational curricula; that an effective way to teach and learn would be to ask questions about the future as well as about the past. There is some small, but nevertheless suggestive, experience emerging in the employment of simulation-games on the future for college students that tough analytic skills and learning motivation are substantially increased. One might ask whether the purpose of education in this day and age is to know (which means to extract from the past our knowledge of it and transmit that knowledge to others) or to choose, which means employing ways to enhance the capacity to exercise critical judgment? Such ways would, of course, include what we can

learn from the past which may assist us to deal with the future. But the question suggests more: namely, that we ask of ourselves, not only where we came from, but also where we are going. An acceptance of that question leads to the recognition that the futures-perspective, utilizing existing tools of projection and of speculation, and developing new tools, ought to receive serious consideration as a significant addition to what throughout most of the world is generally called education.

Appendix

A BRIEF REVIEW OF PERTINENT RESEARCH UNDERWAY AT THE EDUCATIONAL POLICY RESEARCH CENTER AT SYRACUSE

Methods for Thinking about Alternative Futures (see Section I(B))

The thought that the future is best approached from the standpoint of alternatives continues to be a most complex conceptual framework when applied to problems of policy formulation and implementation through planning. Underlying much of the early work of the Syracuse Center in its employment of Delphi forecasting techniques, of cross-impact matrices as a device for analysing more comprehensive alternative futures, and of scenario construction, was the assumption that these methods provided a "value-free" approach to the future, in the positivistic tradition. As research on the methods moves along, it is becoming clear that this and other key assumptions must be challenged on a number of grounds.

Delphi

First, on the basis of research and conceptual analysis conducted by W. Timothy Weaver, serious questions have been raised about the utility of Delphi as a forecasting device in the strictest sense. It may well be that the main value of Delphi lies in its heuristic strength, i. e. providing the Delphi forecasters an opportunity to make explicit their own assumptions and judgments about the future. Experiments conducted by members of the staff at the Syracuse Center with various policy and planning groups in the United States appear to indicate that Delphi-like procedures represent a powerful way of getting the participants to examine the values, beliefs and attitudes which underlie their assertions about the future, irrespective of the quality of their substantive forecasts. Research continues on this point. A preliminary "working draft", "Delphi as a Method for Studying the Future: Testing Some Underlying Assumptions", sets forth some of this work.

Secondly, serious questions must continue to be raised about the "quality" of substantive Delphi forecasts, particularly in the social domain. It has become clear that the specificity of forecasts expected of a Delphi application is difficult - if not impossible - to achieve in the areas of social, political, institutional, cultural and ideological behaviours - at least in the present state of the art. What is an "event" in the social domain? When does a social trend, at some level of aggregation, reach a significant level? How is that level defined, and what do we mean by significant? How is that trend translated into an event which can be defined and specified with sufficient precision to ensure that its meaning is clearly understood by all concerned - particularly if they do not share political beliefs or common cultural understandings? Moreover, what does the attachment of a number representing a subjective probability estimate mean to a group of policy-makers or planners when they are confronted with a series of forecasts supposedly arrived at through an objective methodology? Two reports of Delphi investigations conducted by the Institute for the Future at Middletown, Connecticut, with the support and participation of the EPRC/Syracuse, demonstrate the difficulty of making Delphi forecasts in the social domain and using the results for the analysis and assessment of policy options within the context of long-term alternative futures. The first of these, "Forecasts of Some Technological and Scientific Developments and their Societal Consequences", is now available; a second, "Some Societal Developments: 1970-2000", will be available in the near future.

Third, the now "classical" Delphi interrogation appears to lack one critical component - it possesses no explanatory power. Yet an explanation of the substantive reasoning underlying a particular response to the Delphi question, i.e. a "forecast", would appear to be crucial, since it would provide additional grounds which would allow the independent observer or user to assess the quality of the forecast. Work now underway at the IFF is attempting to modify Delphi so as to increase its explanatory power.

Cross-Impact Matrix

Since Delphi as a method for forecasting the future represents an important ingredient in the application of cross-impact matrices and other devices for constructing alternative futures, serious - though perhaps not insurmountable - difficulties have been discovered in these applications. Lawrence Hudson discusses some of the difficulties and problems encountered in using cross-impact devices in a "working draft" entitled, "Uses of the Cross-Impact Matrix in Exploring Alternatives for the Future". Chief among the difficulties, of course, is the question of the substantive judgments required in

filling in the matrix cells. The question of whether and in what manner event A, if it were to occur, would impact upon the likelihood of event B, goes to the heart of social theory. Experience now amply demonstrates that the quality of output from a cross-impact analysis is very much determined by the quality of analysis and judgment which goes into filling the cells. That, however, is not a simple, technical act. It represents the application of sophisticated social science analysis, which in turn is derived from the present level of adequacy of social theory as an explanatory tool.

Questions of Values

Perhaps the most important recent development at the Syracuse Center in the employment and refinement of these methods for viewing the future is a growing recognition that a "value-free" approach is an inadequate foundation for erecting intellectual and policy-relevant constructs about the future of education or any other area of institutionalised human behaviour. It is clear that even in so-called objective analysis of the future, employing these methods, we are at present unable to distinguish clearly forecasts - which derive from the idea of non-intervention - from statements or feelings about what the future may hold - which derive from attitudes, values and beliefs. Further research is underway in this area, but no quick answers are expected.

Even apart from the question of forecasting, per se, one must raise the question of how a Centre, supposedly engaged in value-free policy analysis and assessment, construes its own organisational and ideological role vis-à-vis those agencies and persons who hold or claim responsibility for planning and decision-making. The answer to that question goes to the heart of the role of the intellectual and social scientist qua policy adviser. That old and hoary question is now exacerbated by the addition of the futures-perspective to the armoury of conventional policy analysis, technical planning, and "think-tank" operations. The Syracuse Center is approaching the question of its own role as openly and critically as it can. A "working draft" entitled "Beyond Progress: On Four Post-Modern Futures", by Manfred Stanley, sets the stage for this inquiry. Employing the classical methods of exegetical analysis in the sociology of ideas and knowledge, Stanley categorized three pervasive and historically enduring ways of viewing the future and indicates, in his judgment, their inadequacy for confronting the increasing tensions and crises of contemporary human existence. The fourth quasi-scenario, called the "Questive Society", is then posited as a possibly fruitful alternative for the development of human and social behaviours adequate to deal with the enormous complexity, interdependence and potential destructiveness of scientific, technological and social change on all fronts.

The line of enquiry is carried further in a second paper, soon to be available, co-authored by Professor Stanley and Professor Robert Wolfson, entitled "Beyond the Invisible Hand: Policy Advisers and Their Clients". The emerging self-conception of the Syracuse Center, which this paper attempts to explicate, is that the traditional role of policy analysis carried on by many organisations, both within and outside the academic community, is indeed not value-free, but representative of a pragmatic, political consensus. This consensus has, at least until now, been unable or unwilling to come to grips with the institutional propensity to neglect and, in some cases, to promote the vast wastage of our natural resources and common "free" goods of air, water and minerals. The result is to pollute and perhaps destroy the underlying "givens" of all human existence, at least as we know it. Indeed, the very forecasts, whether emanating from Delphi procedures or from more conventional trend extrapolation, which the Syracuse Center is employing now in the construction of pictures of the future, are so dismal with respect to the likelihood of survival of humane values as to call into question society's will and ability to invent the social and political institutions - and to promote changes in underlying human attitudes and behaviours - even barely adequate to control and reverse these ecological developments. We are thus confronted with the role and function of educational systems: in what ways might education contribute to the development of attitudes and skills appropriate for supporting, perhaps engendering, fundamental systems breaks and the social, political and human experimentation which may now be called for?

Policy Analysis

Of particular relevance to the application of the futures-perspective to assessing alternative policy options in education in the United States is the work of James Byrnes, with other members of the Center staff, in a project whose objective is to analyse major alternatives for post-secondary education. A quantitative model describing the behaviour of the formal, or core, education system over the past 100 years has been developed with some rather provocative findings. The model, and some of its applications, are set forth in a report which was made available for limited distribution in February, 1970.

At the same time, work on the concept of the "learning force" has progressed to the point of the publication of a major paper entitled "The Learning Force: An Approach to the Politics of Education", written by Stanley Moses.

Educational Planning: Process and Pedagogy

In the continued review of educational planning as currently practiced in the United States, the contention of this paper that a longer term,

comprehensive model for planning for alternative educational futures has not yet been developed or applied appears to continue to be borne out by the evidence. In the hope of developing such a model by working directly with educational planning and policy groups at various levels of the system, the Syracuse Center has taken a number of initial steps to commence the translation of the futures-perspective into operational planning terms. Two rather extensive and comprehensive simulation exercises have been developed by Stuart Sandow which provide an opportunity for planners to employ the Delphi, Cross-Impact Matrix, Scenario Construction, and Futures-History Analysis tools for the formulation of future environments, including the specification of alternative long-term goals and an analysis of their consequences within the larger society. These exercises are considered essentially as heuristic rather than forecasting devices. The objective is not to teach planners how to "do" long-term planning for alternative futures, but to provide an environment within which they can begin to examine some of the ways this might be accomplished, and to consider the ramifications for current problems and policy were such procedures to be used. Of particular interest is the employment of the cross-impact matrix techniques to assess alternative tasks, programmes and goals against each other in terms of their reciprocal enhancing and inhibiting effects.

Along with this initial work in applying the futures-perspective to "real-life" situations confronting planners and policy-makers is the initial development of a pedagogical/training model by W. Timothy Weaver. A preliminary prospectus is now available. This model - still in its formative stages - melds some of the conceptual work of Dr. Eric Jantsch with the various futures-casting techniques discussed in this paper.

Also on this front is the completion and preliminary publication of a comprehensive international bibliographic survey of educational planning by Maureen Webster, with the assistance of Professors Don Adams and Jerry Miner. It is expected that a published version of this bibliography, which will cover the decade of the Sixties, will be available shortly.

This brief survey of work underway at the Syracuse Center since the preparation of the report for OECD should give the reader some indication of how the Center is itself commencing to apply the futures-perspective to educational policy and planning.

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Part Four

CHANGING UNITED STATES SOCIETY : IMPLICATIONS FOR SCHOOLS

by

Willis Harman

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INTRODUCTION

This paper differs considerably from the usual state-of-the knowledge report. The basic reason is that there is, in one sense, no "knowledge" of the future to report the state of. The times are too dynamic for the ordinary sort of projection of present trends to have much value.

To see why, one has only to imagine having, in 1958, a competently done forecast from observable pre-Sputnick trends. It would have had dubious value in guiding educational policy during the decade that followed, since the urgent issues that faced education in 1968 were hardly discernible 10 years before.

On the other hand, considerable value might have been found in an analysis which highlighted long-term educational issues and the projected consequences of alternative responses to them. Knowing these long-term issues, one might have been enabled, through analysis of changing demands on education, to anticipate such deviations as the post-Sputnick stress on science education, or the almost anti-intellectual counter-emphasis on feelings, awareness, and personality growth that appeared in some quarters. These excesses would have been understood as temporary perturbations on the longer-term trend toward a new balance among the functions of education. Or, to take another example, such analysis might have brought out the collision course between the steady movement toward the "affluent society" and the unspoken, de facto function of the schools to differentially educate and thus contribute to the continuance of a large "under-class" in which black and brown minorities are significantly overrepresented. The precise form of the eventual conflict would not have been predicted, but the anticipation of it in some form might have brought some additional illumination to bear on policy making.

Thus, it will be our endeavour in this paper not so much to cite and summarise presently available literature relating to the future of the society and of education, but rather to provide a framework within which that literature and future analyses may be fitted. That is to say, if the attempt is successful, we will have provided the reader with a skeletal structure within which he can construct his own dynamically changing view of alternative futures and their implications for education.

As the construction of this framework proceeds, one fundamental theme will be seen to run throughout. A preponderance of the analyses of the near-term future (that is, the remainder of the twentieth century) pose, implicitly or explicitly, a challenge as to whether the operative values which have served to bring us to the present point of technological and industrial development will continue to serve well in dealing with the problems created by that development. (By the term "operative values" is meant those values which would be inferred from actions taken, not those for which we profess allegiance.)

The forecasted consequences of continuing present trends suggest a need for altered values. On the other hand, as we shall see, analyses of revolutionary forces show that a corresponding thrust toward new operative values is evident. Whether this thrust becomes dominant, or plays itself out as a historical transient, is a key uncertainty of the future.

The goals assigned to the overall educational understaking, and hence all of educational planning, are centrally affected by the ultimate outcome, of this value-choice crossroads. For this reason, it has been used as the most prominent member in our framework for viewing the future, or, more precisely, the available alternative futures. This crucial choice is particularly evident in Section II, where two particular alternative futures are singled out for more detailed description, and in Section V where the value alternatives are related to basic philosophical premises. It plays a less conspicuous role in the other Sections.

In the Section I, we shall examine some of the major trends identified in extant surmisings about the next three decades. By no means is there consensus among forecasters as to the success we are likely to have in solving some of the perplexing social problems ahead. However, almost all analysis admits to the seriousness of those problems. A significant weight of opinion backs the proposition that new technological remedies are not adequate treatment for technology-spawned problems, and that changes in values are essential to a satisfactory outcome.

A different cut at these same data is taken in Section II. Among the various "alternative futures" implicit in the differing projections

of assorted futurists, two are compared. One of these assumes the basic operative values of the decades ahead to be more or less the same as in the decades just left behind; the other postulates a rapid and drastic shift. While the future is likely to be neither one extreme nor the other, but somewhere in between, the comparison serves to highlight the issue involved.

It is a fundamental concept in cultural anthropology that significant differences between cultures are essentially differences between commonly held or dominant basic ideas and standards. Similarly, alternative future states of the society represent, in some sense, alternative dominant belief-and-value systems. This point of view is examined in Section III.

In the Section IV, we shall examine the contemporary revolutionary forces in society and attempt to provide a scheme for making sense out of the rapidly developing events on this stage. Numerous partial explanations are examined for the rebellion of youth and the sequence of revolutionary acts in the Sixties. Since these explanations, either individually or when combined, seem unconvincing and inadequate as interpretations of the total scene, the possibility of an underlying conceptual revolution as yet dimly perceived, is put forth in Section V.

Here is examined the hypothesis that today's perplexing revolutionary activities may be usefully interpreted as indicators of a subtle changing of the basic premises of our culture, comparable in potential impact to the Protestant Reformation. The main point in such a comparison is that if such a transition is taking place, better understanding of it may reduce our anxieties and help in the rational formulation of policies which will contain such destructive forces as have to be contained, while minimizing the violence of "religious wars" which might accompany the change.

Section VI summarizes what has gone before by attempting to extract from the trends, alternative futures, value conflicts, and revolutionary forces, a set of meta-issues upon which appear to hinge the most significant future-determining choices ahead. Typically such a social "choice" - take for example the national commitment to some form of social security - is only to a very limited extent a consequence of the conscious decisions of designated policy-makers. It also involves multitudinous minor decisions of persons of lesser prominence, many of whom are not conscious of having made a choice at all. Yet how the society as a whole moves with regard to these overriding issues will profoundly affect its "future history".

Finally, in the last section, we suggest some of the implications of the foregoing for schools. Analyses of alternative futures states of

this society have two major uses for educational planners. In the first place, since even the near-time future can, at best, be only crudely known, plans need to be examined not only in the context of what is considered to be the most likely future, but also for compatibility with other plausible futures. Secondly, through study of alternative futures we can see more clearly the role of education in helping to determine which of the possible alternative futures actually comes into being.

I

APPARENT LONG-TERM TRENDS

As Kahn and Wiener have noted (1967), a "basic, long-term, multi-fold trend" of society may be observed, which provides a useful baseline against which to contrast alternatives. (That is to say, this trend is not a prediction, but more like a centroid of likely alternatives.) More or less general agreement is found among forecasters with regard to the major components of this central trend as summarised below.

Economic-political

World-wide industrialisation and modernisation. The preponderant trend in the sense of forming a background context for all else in the political and economic realms is undoubtedly what Robert Heilbroner (1963) terms "The Great Ascent", the continued industrialisation and modernisation of the entire world, and particularly the attempt to accomplish this for the largely tropical belt of underdeveloped areas.

The necessity of a shift from a parochial to a "one world" view of "Spaceship Earth" hardly needs defence. Frequent reminding comes from awareness that through present world communications networks repercussions of local events are rapidly felt and reacted to around the world. Ecological problems are world problems. Production/distribution and communication/transportation systems are essentially global. They require, and depend upon, the resources of the entire planet and, more importantly, the global interchange of research, development, and technical and managerial expertise. Most significantly of all, perhaps, there are no "local" political and economic problems any more. Political events in remote lands, famines or other catastrophes in underdeveloped countries, all have direct and immediate impact on the technologically developed world.

On this one-world stage the dominant event is the Great Ascent. "The process of economic development ... visible throughout the newly awakened areas ... is a worldwide struggle to escape from the poverty and misery, and not less from the neglect and anonymity, which have heretofore constituted 'life' to the vast majority of human beings. It is not mere rhetoric to speak of this attempted Great Ascent as the first real act of world history. Certainly in size and scope it towers over any previous enterprise of man ... (It) is not merely a struggle against poverty. The process which we call economic development is also, and in the long run primarily, a process through which the social, political and economic institutions of the future are being shaped for the great majority of mankind... On the outcome of this enormous act will depend the character of the civilisation of the world for many generations to come, not only in the poor and struggling nations, but in the rich and privileged ones as well." (Heilbroner, 1963, p. 9).

The economic development of the world is likely to be marked by profound "revolutions of rising expectations," disharmony, and social discontent; the almost inevitable gaps between expectations and accomplishments may well breed political authoritarianism and economic collectivism; the process will almost surely not be accomplished smoothly and according to plan. The educational jump from a tradition-bound peasant society to a modern industrial one is immense. Strong infusions of knowledge as well as capital will be required if the underdeveloped world is to succeed in this ambitious attempt.

Institutionalisation of change

Emergent change, not homeostasis, is the order of the day. The trend is toward institutionalisation of the process of research-development-innovation-dissemination, and toward the development of organisational forms adapted to promoting change.

Emergence of a "knowledge society"

Drucker (1969) describes this development in detail. The emerging society is based upon knowledge as the central capital, with educational and "intellectual" institutions playing a key role (Bell, 1967). Demand grows for skilled, semiprofessional labourers, and diminishes for unskilled, unknowledgeable labour. Some writers have speculated about the future problem of increased leisure as a consequence of the cybernated society. More likely is the prospect of 40-hour (and up) weeks for the "knowledge workers" and unemployment for the untrained. There will be an expanding fraction of the populace involved in education, and an expanding fraction of the national income going to education. There will also be an increasing involvement of education with other social institutions.

Scientific-technological

Accumulation of scientific and technological knowledge

The one forecast upon which practically all analysts agree is that of an increasing level of applied scientific knowledge, and an increasing degree of cybernation. Kahn and Wiener (1967) list a hundred likely technical innovations, and Chase (1968) describes the society which may result.

Increasing lag of technological solutions behind technology-created problems

Examples abound. Increasing industrialisation creates problems of resources depletion, fouling of the environment, waste disposal, technological unemployment, congestion, and assorted urban ills, problems which show no sign of doing anything but increase. Medical advances are largely responsible for dramatic rates of population growth and consequent overpopulation and food supply problems. Advances in weapons of mass destruction and their delivery systems have brought us to the threshold of an internecine conflict which resembles some of the nightmares of yesterday's science fiction writers.

Robert Heilbroner, in The Future as History (1960), points out that the "new forces" generating problems in the nation today are essentially extensions of three main currents of American historical development, namely rampant scientific and technological development, extension of opportunities to the underprivileged, and increasing social control over private economic life. Those same currents are likely to continue and so are the problems.

Socio-ecological

Increasing problems of ecological balance, environmental deterioration, population concentration, and food supply

There is no indication that any of these problems will do other than get worse in the years immediately ahead. A drastic shift in values to supplement regulatory action seems necessary to reverse trends toward increasing ecological imbalance, pollution of air and water and soil, and nuclear and agrochemical contamination. Although we hear brave talk of solutions to population and food problems through such means as new methods of contraception, floating cities and undersea communities, increased yield by crop breeding, and farming the oceans and coastal

deserts, most projections indicate that at best these measures will only ease the problems somewhat.

Increasing affluence, with increasing self-consciousness of the under-class

The world-wide trend toward increasing per capita income will continue, but with a more rapid rise in the industrialised countries, thus increasing the gap between have and have-not groups. Both in this nation and around the world, increasing pressure to redress the imbalance can be expected from the have-nots.

Growth of a "knowledge elite"

Trends toward increasing bureaucratisation and toward knowledge as power taken together suggest the development of a meritocratic, "knowledge power elite". Bell (1967) goes so far as to predict that "not only the best talents, but eventually the entire complex of social prestige and social status, will be rooted in the intellectual and scientific communities".

Increasing interdependence of social and political institutions

Partly in response to these world problems we can expect a continuation of the trend toward limited-purpose international organisations and corporations (together with attempts - probably unsuccessful - to move further in the direction of a strong United Nations). Movement will also continue toward recognition, in institutional forms and practices, of the interlocking nature of economics, technological development, education, health, and the social order.

Within the nation, the trends toward greater urbanisation and industrialisation will continue, and with them the increase of associated problems - urban decay, technological unemployment, congestion, poverty concentrations, crime, and accumulation of waste products. These trends, too, contribute to pressure for increasing social control, increasing pluralism of institutional power (with ethnic, economic, and age minority groups insisting on representation), and increasing meshing of the activities of local, State and Federal government agencies, business corporations, and nonprofit institutions. Detailed central control may tend to be replaced by generalised central control with local units making decisions on the specifics of carrying out broad policies.

Cultural-psychological

Increasing proportion of growth-motivated persons

Past trends of increasing affluence, increasing levels of education, and changing childrearing patterns combine to indicate that an increasing fraction of the population will be, in Maslow's terms, "growth-motivated" rather than "deficiency-motivated". This shift is showing itself in the higher valuations placed on the feeling and subjective side of life, on self-realisation, and on finding meaning and significance in work. There is, in addition to more questioning of traditional work values, a tendency to blur the distinctions among work, leisure, and education.

Increasing stress-producing forces on the individual

These include continuing international and domestic tensions, fear and hostility in the cities, rapid obsolescence of job skills, increasing complexity of the individual's network of inter-personal relations, and instability and change in life patterns. The future will be characterised by a good deal of fear of change, fear of powerlessness, fear of loss of privacy and independence, fear of insecurity; this will give rise to counterforces opposing some of the trends listed above.

"Unsolvable macroproblems"

There stand out, from these predictions, two problems which we might well term "macroproblems". The effects, and the urgency of their ultimate solutions, are worldwide in scope. They are already serious and will undoubtedly become more so. And most significant of all, there is good reason to assume that they will not be solved within the context of present operational values. The first is what Kahn and Wiener term the problem of our "Faustian powers". The second is the poverty of the high-breeding-rate masses of the underdeveloped nations.

The "Faustian powers" humanity has gained through rampant development and application of technology have already brought us to the threshold of overpopulation (through technology-reduced mortality rate), pollution of air, water, and soil, extensive unemployment of the unskilled, paralysing air and surface traffic congestion around urban centres, and the threat of nuclear holocaust. These have been the consequences of the unspoken policy that whatever technology would make a profit for an individual or an organisation, or would contribute to a nation's ability to carry on warfare, that technology would be developed and applied. But now this policy has brought us to what Archibald Mac-

Leish has called (1968) "the Great American Frustration" - the feeling that we "have somehow lost control of the management of our human affairs, of the direction of our lives, of what our ancestors would have called our destiny".

For it has become clear that we have now, or could develop soon, the power:

- through "human engineering", to modify indefinitely the bodies of selected individuals, for reasons ranging from scientific curiosity to prolonging life;
- through genetic engineering, to modify the characteristics of the human race and to shape the course of evolution;
- to change to unlimited extent the physical characteristics, and the plant and animal population, of the biosphere;
- to alter to unlimited extent men's mental and emotional characteristics, including intellectual abilities, motivations, affect, personalities, and character;
- through weapons of mass destruction, to annihilate large segments of the human race and devastate large areas of the earth;
- to change significantly, in many other ways, the kind of world which is handed on to the next generation.

Past experience gives us little assurance that the predominantly economic values and laissez-faire policies which have thus far governed industrialisation and technological development will suffice to insure that such potent powers will be used for the overall benefit of humanity. Our past practice has been to allow arms races, or pollution, or environmental degradation, or ecological imbalance, or denuding of the land to proceed until the situation was obviously becoming intolerable, and then attempt some sort of corrective action. This may not be good enough in future.

Wheeler (1969) argues that some sort of control of the flow of scientific and technological innovation is as necessary now as economic controls of capital flow have been in the past. Furthermore, this control must be transnational, involving at a minimum all the highly developed nations.

It seems clear that this "sorcerer's apprentice" problem calls for more than simply different policies. Some new institutional form, in addition, will be necessary. But even more may be required. In the end the issue is not one of technology but one of values. The question is not one of devising managerial technology to control technology, but

rather the more fundamental question of whether the operative values which served so well in the development of modern technology are basically capable of handling its humane application. Peccei (1969) sums it up:

> "The ambivalence, ambiguity and unpredictability deemed to be linked to technology are man's. Whether the sum total of its effects will eventually be disruptive beyond repair, or fruitful beyond hope, depends essentially on him ... Villain or saviour, perverter or healer - technology will just play the role man assigns to it. But one thing is not possible: that man may himself go on (irresponsibly) playing with the tremendous force of technology. He can no longer remain an apprentice sorcerer. He has to master his technology. What he must realise is that his function has changed. As Julian Huxley said, "His role, whether he wants it or not, is to be a leader of the evolutionary process on earth and his job is to guide and direct it in the general direction of improvement".

The second "unsolvable macroproblem" centres around the tendency for the gap between industrialised and underdeveloped nations to worsen in spite of deliberate programmes aimed at closing it. This comes about as a combination of two powerful factors, the self-regenerating acceleration of technological and industrial development in the prosperous nations, and the staggering problems in the overbreeding and underdeveloped societies. In the latter countries, where the major impact of modern science has been to lengthen the average child-bearing period and dramatically upturn the population growth curve, population is doubling in a generation or less. Merely to maintain their current subhumanly adequate standard of living requires more than their available capital resources; they lack a sufficient force of trained teachers, technicians, and managers; they have little industry, and need to make good enormous arrears in food production, education, road building, housing and sanitation.

Ethical considerations quite aside, the existence of this growing disparity in quality of life poses a constant threat to world stability. "Extreme poverty, when combined with ignorance, breeds ... the resigned acceptance of a subhuman lot. But extreme poverty, when it is combined with the knowledge that some societies are affluent, breeds envious desires and the expectation that these desires must of necessity, and very soon, be satisfied ... By means of the mass media some knowledge of what life is like in affluent societies has been widely disseminated throughout the world's underdeveloped regions ... In the context of a three, or even of a two, percent annual increase in numbers, high expectations are foredoomed to disappointment. From disappointment, through resentful frustration, to widespread social unrest the road is short." (Huxley, 1969).

Again the immensity and complexity of the problem are sobering. It does not appear politically feasible, given present operative values, for the governments of the prosperous nations to contribute foreign aid which is at all of the magnitude required to bring these nations to the "takeoff point". As regards the private sector, the rationality of the profit motive tends to limit severely the investment in delayed-payoff but essential buildup of human capital. Without this human development it will continue to be more profitable for business to invest in European and American affluence, rather than in Third-World poverty. Thus the prospects for the underdeveloped countries are dim, yet the potential costs of failure to solve the world's poverty problem are frightening to contemplate.

Again the question is whether the values which served well enough for isolated villages, or even isolated continents, will suffice to guide a single integrated planet. If they will not, then this is the most important single thing to know in designing the education of the future. For if values are to be changed, this must be through an educative - though not necessarily a schooling - process.

II

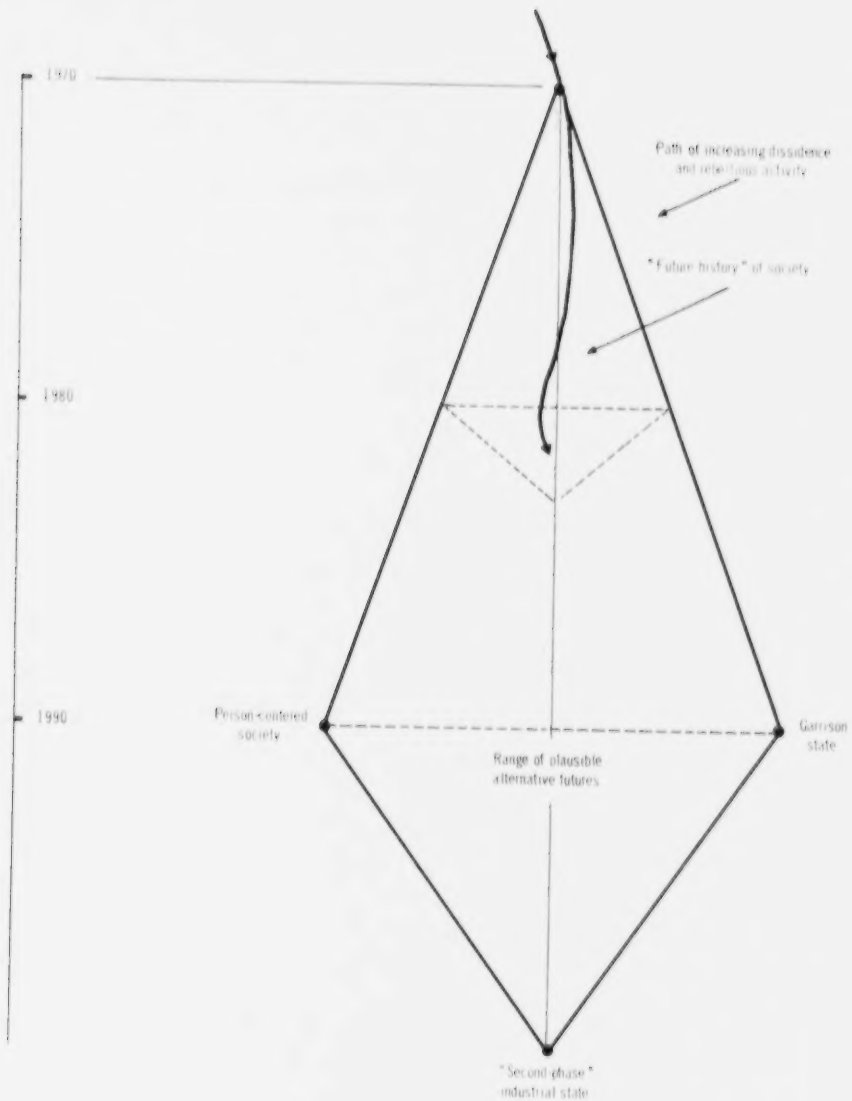
TWO CONTRASTING FORECASTS

Confronting the decades immediately ahead, we are tempted to paraphrase Charles Dickens as he opens A Tale of Two Cities: It will be the best of times, it will be the worst of times, it will be the spring of hope, it will be the winter of despair. Within the forecasts from which the "basic, long-term multifold trend" was extracted are to be found a broad range of portrayals. At one extreme are descriptions of the utopian benefits of technology relieving man once and for all of concern over supply of human wants, providing unlimited leisure and universal education, and fostering democratic freedom and equality such as only a high-technology affluent society can do. At the other extreme we find dire predictions of uncontrollable fouling of the planet, reduced privacy and political significance of the individual, and widespread overpopulation, poverty, famine, and civil disorder. What sort of order can we bring out of this divergent prophesying?

Since we cannot know the future, and in fact must proceed under the assumption that we have some freedom of choice in affecting the future, we can most profitably speak not of a predicted future, but of a range of plausible alternative futures. Figure 1 is an attempt to show the concept diagrammatically. If the level of increasing dissidence and rebellious activity were to continue to rise, and with it the level of counteractive repression, it is conceivable that we might move toward a garrison state by, say, 1990. On the other hand, if the "basic, long-term, multifold trend", is extrapolated we arrive, more or less, at what might be termed a "second phase" industrial state, to be described below. The general idea is that the actual "future history" of the society will probably not be a straight-line path to one or another of these possibilities, but rather will be a wavering pathway to some mediate state.

At the everpresent risk of oversimplifying to the point of distortion, let us compare two of these alternative futures for, say, the last decade

Figure 1


1970
1980
1990
Path of increasing dissidence and rebellious activity
"Future history" of society
Person-centered society
Garrison state
Range of plausible alternative futures
"Second-phase" industrial state

of the century. I will term them the "second-phase industrial" society and the "person-centered" society. The former is the sort of description which might emerge from a weighted summation of the multifarious trend projections, Delphi forecasts, and brave-new-world predictions which abound in technical and popular literature. (It is similar, in its basic concept of extrapolation of present trends, to the "The Most Probable World" of Chase (1968).) The "person-centred" society is a composite picture based on the views of a group of writers and analysts who assume (or hope) that a rapid change to some kind of "post-economic" institutionalised values will take place. This group includes, among others, John Kenneth Galbraith, Michael Harrington, Erich Fromm, John Rader Platt, Kenneth Boulding, Robert Theobold, and Abraham Maslow.

These two futures are not presented, even by their proponents, on an equal basis. The first assumes a relatively continuous transition from the "first-phase" industrial society, which has so far lasted from the Industrial Revolution to the present, to the "second-phase" computerised, cybernated state. Implicit is the further assumption that such trends as the expanding economy and the advancing technology have, so to speak, a life of their own. Once set in motion, their own dynamic nature carries them forward. Thus it is appropriate to project them ahead and ask such questions as, "What effect will increased knowledge in bio-engineering have on human values?" To be sure, the advance of technological achievement will bring with it such new social problems as industrial pollution, poisoning by agrochemicals, encroachment on privacy, traffic congestion, and threat of nuclear destruction, which are our present heritage. But these problems, in turn, will be "solved" by still higher technology.

The second forecast, the "person-centred" society, assumes, by contrast, a significant discontinuity with past trends. Its proponents tend to view our present "time of troubles" as a transition period to a state radically different from the present, both in institutional forms and in institutionalised values. The level of technological development would be comparable with (or somewhat lower than) that in the first forecast, but the uses to which technology would be put might differ significantly. The value shift would be in the direction of a more "person-centred" culture. Critics of this forecast would say it is unrealistic; critics of the first would say it is undesirable, if not self-destructive.

The "second-phase" industrial society

In both of these forecasts we can assume that certain trends and developments are here to stay, at least for the near future. One is a high and increasing level of technology and of cybernation. Second is

the conduct of most purposeful activities by large-scale centralised organisations, such as those developed in government and industry in recent decades. Further, distinction between public and private organisations will no doubt become more blurred, as it already has in military procurement, space exploration, and atomic energy. Planning will tend to replace the market mechanism in controlling the flow of money, goods, and services.

In the second-phase industrial society, cybernation will have taken over, and will do better, many of the tasks for which men's minds are presently trained. Those who are leading exciting lives at the managerial or technological forefront of the advancing society will probably work as long hours as at present. For the rest there will be increased leisure to be used for recreation or education. On the whole, there will be more years of education per person and a near-hundred-per-cent literacy rate.

Research and services will play a more dominant role, production less. "Intellectual institutions" (universities, research laboratories, "think tanks", systems analysis centres, etc.) will play a more significant role. Change - the research, development and innovation process - will be institutionalised, that is, institutions will be facilitators of change rather than impediments to change. These developments will result in the growth of, and concentration of power in, a bureaucratic and knowledge-based "meritocratic" elite, a highly professional and intellectual class which will comprise a network linking the widespread governmental, military, university, research, policy analysis, urban development, financial, commercial and industrial organisations. Highly centralised and intensive (though possibly subtle) social control will be wielded over vocational training, worker mobility, work attitudes and consumer habits.

New applied technology will have affected life in many ways. New types of household devices, many based on small computers and elaborated communication services, will be available, not only transforming the life of the housewife, but also allowing education and various forms of business to be carried on in the home. Through cybernation and genetic management of plants and animals, the agricultural industry will be made many times more productive in terms of use of land and labour. Coastal desert lands will be made habitable with desalinated water. Nuclear power and fuel cells will provide ample energy for all demands. Automated factories will produce practically all consumer goods, with variety programmed in to satisfy customers. New transportation systems will have more people travelling further, faster. The housing industry will indeed have become an industry, producing new types of improved housing with mass production economy, yet with aesthetic and functional variety.

There will be variety in cities too, with specialised forms - scientific city, university city, festival and ceremonial cities, recreation city, experimental cities - and planned communities. Experiments with alternatives to the main patterns of living (precursors being communes, bohemian urban communities, substitutes for marriage, etc.) will be commonplace. Schools in the forms we know will virtually disappear. Instead, education will take place via combined systems of machines and human assistants located in homes, neighbourhood centres, specialised learning centres, museums and industrial and business locations.

Along with these advantages there will be some problems. Because of the lag in modernisation of underdeveloped countries, the gap between rich nations and poor nations will grow even larger. International organisations of various sorts will somehow have managed to contain the nuclear threat, and will have made great strides in fostering economic development of poor nations, but there will still be international strife and the economy will continue to be semi-militarised. Fed by the dynamic character of science-technology, and unchecked because of failure to find any satisfactory alternative to technological approaches to international problems, the arms race will have continued to escalate.

There will be internal tension too. Although some progress will have been made on the poverty problem, the white-nonwhite conflict will continue, and the alienated young of the sixties will be raising another generation, also alienated. However, the law enforcement agencies will have regained the initiative, violence and counterviolence will be under control, and conflict will mainly take the form of widespread subterranean resentments.

It will be interesting to speculate on the nature of these dissenting views. The dissenters will be, on the whole, at a higher level of material well-being than in the sixties, and better educated. We can imagine their criticism of the basic contradictions in the society as follows: The operative goals of the society are continuing expansion of output (goods and services), a companion increase in consumption, technological advance, efficient use of resources to these ends, and the public images that sustain all these. Individual lives are to be spent in the service of these goals. Human wants rate lower than, and thus must conform to, the needs of the industrial system. State policies, the educational system, and conventional morality are moulded to fit the requirements of the system. Although the necessity to close the gap between rich and poor nations is recognised, it is uneconomical to trade freely with them or to invest heavily in their balanced economic development. The need is recognised to abolish the slums, poverty, and racism, and to provide adequate education and equal opportunity to the poor minority, yet it is uneconomical for private capital to do

this, and effective government action is opposed by threatened lower-middle and working class whites. Humans need contact with nature and beauty, but it is uneconomical to design a humane urban environment or to provide money for parks, aesthetics, history, or civility. Although the channels of mass communication offer a great potentiality for public enlightenment, they are used mainly to promote sales and distribute propaganda for business and government interests. Somehow the social system is not serving the interests of the individuals who comprise it; nothing short of a radical change in the operative values within it can alter this fact.

The "person-centred" society

In the "humanised technological" society of the contrasting forecast, it is precisely these operative values which have changed. The goals of the society include making economic growth meet human needs, achieving knowledge and aesthetic advance, and controlling social problems so that individuals may progress toward their own goals of self-fulfilment. The industrial system is subservient to, and responsible to, these larger purposes of the society. The overarching goal is the cultivation and enrichment of all human beings, in all their diversity, complexity, and profundity.

In the forecasts which describe this society, each individual will be provided with enough resources, and in such a way, as to enable him to live in dignity. Underlying the economic system will be the proposition that each free man has the right to a full life, which includes useful, rewarding work and self-development. Economic security will not be achieved only by welfare payments or guaranteed incomes. In part, at least, it will be accomplished by an extension of the principle of free goods and services from those already provided (elementary education, library services, fire and police protection, innoculations, lunch milk for children, etc.) to include others (such as reeducation for a new occupation, food and nutrition staples, urban transportation, etc.). In the "knowing society" (Drucker, 1969) education will be as central to the economy as mass production has been in the past. Thus, education is a valid occupation, entitling the educatee to subsistence as well as the opportunity to learn. A diversity of educational paths will be available, and men will not be judged on the basis of a single uniform academic standard. (Competitive grading, therefore, will assume much less significance.) Similarly, the society will provide a diversity of ways in which a person can win the esteem of others. In other words, economic failure or academic failure will not be equated with failure as an individual.

Mumford (1965) has analysed the basic attitude shifts that would have to accompany conversion to the "person-centred" society. There are, he says, "serious reasons for reconsidering the whole picture of both human and technical development on which the present organisation of Western society is based... The deliberate expression and fulfilment of human potentialities requires a quite different approach from that bent solely on the control of natural forces ... Instead of liberation from work being the chief contribution of mechanisation and automation, liberation for work, for educative, mind-forming work, self-rewarding even on the lowest physiological level, may become the most salutary contribution of a life-centred technology".

The society will be a planned society, but planned in such a way as to deepen, not diminish, the freedom of the individual. Opportunity will be provided for real participation in planning by those for whom the planning is done. Management structures will be such that power flows both ways.

The technological level will be high, as in the "second-phase industrial" forecast, but the priorities for technological development will be influenced by human and global needs. The problems of the ghetto and of the underdeveloped societies will not have been completely eliminated, but their solution will have had high priority. As a consequence of these efforts to respond to human needs, and also as a consequence of the way people perceive the goals of society, international tensions will have lowered and internal alienation will have decreased markedly. The military establishments of the industrialised nations will have moved a long way toward co-operation in an international policing role. Internally, new standards will govern the recruitment and training of officials responsible for maintaining justice and order, and the image of the police will be that of protector of all, with fairness and justice to each, regardless of skin colour, economic condition, or type of haircut and beard.

Education will centre on developing self-learning habits and skills, problem-solving and decision-making abilities, individuality, sound valuing capabilities, capability of continuous self-renewal and self-understanding. Education will be much more equated with life, and with the distinction between formal and informal education having become blurred it will be much more a lifetime activity. The significant distinctions will not be work vs education or work vs leisure, but work-education-leisure vs "killing time".

Hutchins (1968) describes "the learning society" as "one that, in addition to offering part-time adult education to every man and woman at every stage of grown-up life, had succeeded in transforming its values in such a way that learning, fulfilment, becoming human, had become its aims and all its institutions were directed to this end. This

is what the Athenians did ... They made their society one designed to bring all its members to the fullest development of their highest powers ... In Athens, education was not a segregated activity, conducted for certains hours, in certain places, at a certain time of life. It was the aim of the society ... The Athenian was educated by the culture, by Paideia."

The Athenian education was made possible by slavery, which was the necessary provider of leisure. But "machines can do for every modern man what slavery did for the fortunate few in Athens. The vision of a learning society ... can be realised ... Whether it does or not depend upon the transformation of values.

But a set of values, in turn, are based upon a conception of the nature of man, his potentialities, and the possibilities for their manifestation. That is to say, the choice between the two alternative futures we have described is also in a sense a choice between two images of man.

III

BELIEFS AND VALUES IN TRANSITION

Thus far, we have postulated that the values of society are, or may be, in transition. Advancing technology has an impact on values. (Perhaps more fundamentally, values have an influence on which technology comes into application.) So also may values alter as a consequence of perceiving that past values are leading us into untenable situations. In the preceding Chapter we argued further that a choice among significantly different alternative futures is implicitly a choice among belief-and-value systems (Baier and Rescher, 1969).

Four belief-and-value positions compared

Let us now compare summary descriptions of four belief-and-value positions which are interacting at the present time to generate the future. They are :

A. US middle-class (traditional),

B. "New" values (proposed by humanistic-psychology writers and "forerunner" youth),

C. Behavioural science,

D. American origin (implicit in founding documents and Western political tradition);

It is apparent that the "new" values (B) are currently challenging the traditional ones (A). One naturally looks to the behavioural scientists to see if they are uncovering any new knowledge of human behaviour and characteristics which would shed light on the controversy. It looks very much as though the behavioural sciences have an implicit value system of their own (C) which is not neutral with regard to the conflict. In view of this observation, it becomes of interest to compare all three

of these with the set of values on which the nation is presumably based (D). This we propose to do briefly, after first summarising in comparable formats the four sets.

A. U.S. MIDDLE-CLASS TRADITIONAL RELIEFS AND VALUES

We mean by this title the beliefs and values which have dominated U.S. industrial society and which today's youth tend to reject, at least in part. It is difficult to be explicit, since the values of the middle class are changing and have clearly departed considerably from what they were in the 1930's, both in the direction of diversity and pluralism, and in an overall shift toward the "new" values described below. This belief summary describes, at any rate, a representative position.

Beliefs

Implicit in this belief-and-value system is that, while religious beliefs are good to have as a basis for morality, the values derived from the Judeo-Christian tradition will stand by themselves on a pragmatic basis. Hence, there tends to be little emphasis on specific religious beliefs or metaphysical premises as a source of values; atheists, agnostics, Christians and Jews are expected to have more or less the same values. Thus without being tied to a particular cosmology, there tends to be a generalised belief.

- in the perfectability of man and in his ability to better his position through his own efforts,
- in material progress as the meaning of social progress,
- in humanitarianism and a moral orientation to the world.

Individual-rights values

A high value is attached to the rights to 1) individual pursuit of economic security and happiness, 2) personal liberty (freedom, privacy and property rights), 3) equality of opportunity and justice, and 4) essential respect as a human being. These rights are strongly tempered by the ethic that man must earn what he gets, through industry and persistence.

Life-setting values

Value is placed on the orderly society, with social roles and rules for transition well-defined, and domestic and civic virtues commonly

held. Pleasantness of environment and the esteem of others are prized. "Meaning" in life centres largely around success and achievement in terms of money, property, power, and status. For these goals one is willing to sacrifice present pleasures and postpone gratification until the future. Self-discipline, hard work, efficiency and productivity are honoured; the emotional life should be well-regulated and rationalised.

Personal characteristics

The following personal characteristics are valued: Industry, integrity, dependability, self-sufficiency, rugged individualism, control of inner feelings, moderation, rationality, orderliness, regularity, conformity, pragmatism, cleanliness, responsability, loyalty to family and firm, patriotism, Apollonian style, action as contrasted with contemplation, youthfulness.

B. "NEW" VALUES

These are the beliefs and values of the humanistic and existential psychologists (Erich Fromm, Abraham Maslow, Carl Rogers, Rollo May, etc.) and the youth culture labelled "forerunner youth" by Fortune magazine in a recent survey (January 1969). This position is much more explicit than the previous one in what it affirms about man.

Beliefs

Basic premises include the affirmation that fundamental to all else in human experience is awareness, and that through his awareness of himself and of his relations to others and to the universe, man can discover values which are wholesome in terms of promoting his growth toward the most fully human state and his actualisation of his highest potentialities. Man responds to a hierarchy of perceived needs, but ultimately his basic dynamic is toward growth and becoming.

Individual-rights values

The highest value is attached to the individual's right to pursue self-fulfilment, personal liberty, equality of opportunity and justice, and essential respect as a human being. These values are considered to be, not just pragmatically desirable, but rather to follow directly from the affirmation of the essential validity of inner experience and from the collective subjective experience of the race.

Life-setting values

Meaning in life centres around the discovery and actualisation of one's hightest potentialities, the pursuit of self-fulfilment. The desirable environment is one which promotes growth and fosters inner freedom; that is, it is truthfully responsive and ultimately supportive, as the therapist is to his client. Self-discovery experiences are to be sought after, not avoided. Thus conflict and ambiguity are not threats to the good life, but pathways to it. Beauty and deep personal relationships are highly valued, again because in experiencing them man more fully experiences himself.

Personal characteristics

The following personal characteristics are valued: Openness, authenticity, integrity, sensitivity, aliveness, spontaneity, self-honesty, balance between or transcendence of opposites (reason/emotion, Apollonian/Dionysian, work/play, self/not-self) (Maslow, 1967).

C. BEHAVIOURAL SCIENCE

There is, of course, no single viewpoint which faithfully represents the views of American behavioural scientists as they apply their knowledge to matters of social policy and social values. However, one could perhaps think of some kind of centre-of-gravity viewpoint. The attempt is important because the behavioural-science viewpoint is influential, and because it is espoused by so many of those who wrestle with social policy questions. A reasonable approach would seem to be to examine writings of behavioural scientists relating to social problems, and the textbooks from which behavioural science is taught. The latter particularly are strongly influenced in their implicit premises by the behaviourist tradition in psychology and by Freudian psychoanalytic theory.

Beliefs

The basic premises include the assertion that human behaviour can best be understood as an interaction among more or less stable characteristics of the individual and the immediate situational context. The individual characteristics - personality pattern, values, goals, etc. - arise in turn from the historical interaction between physiological needs and instinctual energies and desires on the one hand, and environment - particularly that of early-childhood - on the other.

Socially acceptable behaviour is arrived at through socialisation (conditioning) processes.

The behavioural-science position tends to be reductionist, especially regarding such "higher values" as freedom, justice, love, co-operation, reason, courage, free will, truth, beauty and goodness, self-fulfilment, and responsibility, regarding them as sublimations of instinctual drives or as more straighforward cultural conditionings. Thus the basic value position is one of moral relativism.

Individual-rights values

Such rights as the individual pursuit of happiness, personal liberty, and equality of opportunity are deemed good ones for a society to have on a rational, pragmatic basis. However, altruistic behaviour is basically at variance with man's instinctual (aggressive, territorial, etc.) nature, and it has to be instilled by the culture.

Life-setting values

Likewise, such values as social order, justice, social consciousness, democracy, humanitarianism, public service, morality, achievement, etc., are perpetuated by the culture because of their usefulness, but they have no deeper transcendental roots. Because of the implicit deterministic assumption, values such as freedom and democracy, which imply that the individual ultimately has free will and is responsible for his actions, are not only cultural inventions, but illusions.

Personal characteristics

Various personal characteristics may be valued, particularly scientific objectivity, intelligence, and impassivity. However, it is recognised that the choice to value these characteristics is itself illusory in its freedom, since these tastes must have been culturally imposed somewhere along the way.

D. AMERICAN ORIGIN

In the speeches and writing of the men who were present at the founding of this nation are to be discerned the basic premises and central values of the Western political tradition and the specifically American additions.

Beliefs

The most important basic premises underlying the nation's founding are that the universe has a physical and moral order, that Natural Law is discoverable by man, and that man intrinsically strives toward the understanding of the natural order and toward the perfection of his nature. "Unerring order and universal harmony reigning throughout the whole ... God is the power of first cause, nature is the law, and matter is the subject acted upon." (Thomas Paine) Social order is to be derived from man's universal nature. The history of man is a progression in time toward a definite, supremely meaningful end in which human fulfilment is achieved. Man's purpose in history is to seek individual realisation and social and political justice. Man has the free will to accept or reject natural purpose and natural law.

Individual-rights values

Supreme rights are those to life, liberty, and the pursuit of self-fulfilment; to equality before the law and equality of opportunity; and to freedom with regard to spiritual beliefs and the rituals and life patterns in which those are expressed.

Life-setting values

Among the specific life-setting values commanding high allegiance here are:

- the mission of America to bring a new order into the world,
- the prime function of society being to serve the individual's rational and purposeful perspectives and acts,
- a binding, just, and adaptive system of common and constitutional law,
- the supremacy of the General Will (what people ought to want in the light of the ethic of the Western political tradition and of their own rational, individual, and social interests) over temporary popular desire,
- the right and duty to resist when government does not fulfil its responsibilities to the individual and becomes tyrannical and destructive,
- equal opportunity, special privilege for none,
- education: "Enlighten the people generally, and oppression of mind and body will vanish like evil spirits at the dawn of day." (T. Jefferson),

- harmonious and successful human relations, spiritual salvation, reason, tolerance, freedom, justice, co-operation, persuasion rather than force, individual responsibility, enlightened self-interest.

Personal characteristics

The following personal characteristics are highly valued: integrity, responsibility, rationality, industry, self-sufficiency, fairness, spirituality, patriotism, humanitarianism, idealism.

With these summaries of four belief-and-value systems before us we have a useful way of looking at some contemporary issues. The traditional middle class premises are congenial to the "second-phase industrial" kind of future. The "person-centred society", on the other hand, would require a shift of dominant values in the direction of the "new", humanistic-psychology, and forerunner youth basic premises. Changes in basic premises are not easily brought about; there is little indication that deliberate attempts to change basic premises and value positions, through conventional educational processes, are very successful. On the other hand, the "new" values appear to have a strength in today's culture which would hardly have been anticipated even a half-decade ago.

Formal education positions have been strongly affected by the behavioural-science premises in recent decades. These premises are more in line with, and supportive of, the traditional middle-class values.

Interestingly enough, the "new" beliefs and values turn out to be remarkably similar to those which formed the ideological basis for the founding of the nation, as is indicated by the criticisms of disaffected youth that the Establishment is false to its declared values.

Let us take a closer look at these criticisms and the dynamics of their expression, since the nature and resolution of these revolutionary forces will clearly have much to do with the choice the society makes among its possible alternative futures.

IV

MANIFEST REVOLUTIONARY FORCES

There is little need to make the case that recent years have brought a rapid growth of political and social disorder. Conflict between whites and nonwhites, at a high level, has recently become more overt and violent. At the same time, alienation of youth and minority groups from the "military-industrial-education complex" and from national aims and policies has been expressed in an increasing level of violence. Educational institutions have found themselves furnishing a stage for much of the enactment of this drama. We have seen campus demonstrations escalate from sit-ins to forcible seizures, and then to armed seizures; likewise the responses of enforcement agencies have moved from debate to mass arrests, teargas, and bayonets. There seems no reason to assume that events in the months to come will not involve similar expressions of dissidence.

Indeed, we may confidently expect that educational institutions will continue, by virtue of their central position in a high-technology society, to be at the centre of the fray. For this reason, it will be useful to consider a framework for viewing the significance of contemporary revolutionary forces. This conceptualisation will attempt to gather superficially unrelated events into an overall pattern. Its "fit" can be seen with sureness only in historical retrospect; it cannot be demonstrated. The heuristic test is how well it seems to accommodate further developments. We may hope that this framework will help us see better how present responses to revolutionary forces relate to alternative futures.

"Causes" of dissent

The overall situation regarding civil unrest, dissidence and violence is obviously complex. At the level of manifest phenomena it has many aspects - student rebellions, ghetto riots, minority group threats

organised movements for violence and assassination, rising sentiment against the Vietnam war, deteriorating national image at home and abroad, attacks on the "military-industrial-education complex", concern over inadequate response to social problems, and demands for participatory democracy, to mention a few. At the more fundamental level of the social structure, present institutions and institutionalised roles, and present forms of power distribution, are being assailed. At what is in some sense a still deeper level, the operational values and goals of the power structure are being challenged. Under particular attack are the obsession with technocratic-economic values and the depersonalising aspects of computerised bureaucracy. Some of these phenomena are worldwide. The underlying causes are clearly multi-faceted.

To explain various of these phenomena and their appearance at this particular time, a number of causes have been proposed, including:

- Disillusionment with liberal promises and programmes, and with hypocrisy in the social structure,
- The natural rebelliousness of youth,
- Permissive child-rearing patterns,
- The neo-Marxist revolutionary movement,
- Activities of foreign subversive agents and internal revolutionaries,
- Moral reaction against the Vietnam war,
- Rising expectations among have-not groups,
- Disillusionment with widespread competitiveness, inequity and hypocrisy,
- Revolution for the thrill of it,
- Rebellion against impersonality and "students as commodities" attitudes in universities,
- The continuing fight for civil rights,
- The demand for student participation in educational decisions,
- The Draft,
- The greater number of average years of formal education and, hence, extended period for youth to have its own, separate youth culture,
- Underlying anxiety over the threat of nuclear annihilation,
- Neurotic reaction to a confusing world.

Such partial explanations do not, however, appear to do justice to the facts. Various evidences suggest that instead of coincident but relatively unrelated phenomena, we are in actuality dealing with a complex of highly interrelated phenomena - so interrelated that they may be profitably viewed as one intricate underlying phenomenon, of which the specific events are but manifestations. Such an interpretation is suggested by the fact that the student revolutions are world-wide. Although specific issues in Paris, Mexico City, Tokyo, Morningside Heights, Berkeley, San Francisco, and Montreal differ widely, youth unrest appears to be almost a universal phenomenon. Issues clearly transcend the strictly educational ones. Student concerns include a strong element of civil rights; student radicals may be seen in labour picket-lines, and union members participate in student demonstrations; targets of militant action include industrial corporations and nonprofit think-tanks.

A crisis is also often an opportunity. If, when a unified view is taken of contemporary revolutionary phenomena, constructive as well as destructive forces can be observed to be present, this fact is most important to understand. As Noam Chomsky recently observed (1969), "There now exist opportunities for change that are not very likely to recur". Perhaps the greater danger in the present situation is that, in reacting to crush the destructive threat to the social order represented by coercive force and deliberation violence, we may unwittingly repress a constructive force for change in the direction of a fuller realisation of the most basic goals of the nation and of the Western political tradition.

Two components of revolutionary force

The two main issues implicit in contemporary revolutionary activity are:

1. A demand for emancipation on the part of various subjugated or underprivileged groups;
2. A demand for societal and moral reform on the part of persons, mainly privileged youth, who are not subjugated or impoverished in any ordinary sense.

These issues need to be viewed somewhat separately because, while satisfaction of the second demand tends to imply satisfaction of the first, the reverse is not true. Although the revolutionary fervour associated with the first issue could probably be reduced by offering economic gains and limited sharing of power, the force of the second might still remain.

The first issue is a demand, by groups who feel subjugated, for emancipation: for potency in the society; for an effective voice in decisions affecting their individual destinies; for the right to feel a sense of self worth; or for equal social, economic, and educational opportunity in a system that does not deprive them of meaningful participation because they are black, or students, or poor, of "culturally deprived." Among such groups are:

- Blacks
- Third World
- Students, Draft-age Youth
- Teachers
- Labour
- Women
- Consumers
- Homosexuals, sexual deviates
- Marijuana smokers
- Psychedelic drug advocates
- Experimenters with marriage substitutes
- Opponents of the Vietnam war
- Welfare recipients and poverty groups
- Minorities in general

These various groups do not have identical aims, of course. Nevertheless many of them find adequate common cause to be frequently seen in collaboration. (We do not mean to blur over the very real differences either - success has not crowned attempts to marry black, student, and labour groups. In addition, the groups vary considerably in the extent to which their claims for emancipation are recognised by, and trouble the conscience of, the dominant majority.)

The second issue is both a demand for the person-centred values (and for institutional reform to that end) and a challenging of the values and the power of the "military-industrial-education complex".

In terms of values, this force represents a rejection of what we earlier described as traditional middle class values, espousing instead what we called the "new" values. This group tends to define as immoral and bankrupt a national policy which is perceived as offering token reform at home and counterrevolutionary imperialism abroad. They point to a demonstrated inability of the present power structure to create a viable international order, to cope with environmental problems, to correct institutionalised and legitimated inequities, and to construct a high-technology society which does not at the same time affront and humiliate the human spirit.

Analysis of revolutionary forces

In the remainder of this section, we propose to discuss contemporary revolutionary forces and their significance, using as our context the diagram in Figure 2. This diagram is an attempt to indicate various possible states of mind individuals may have with regard to felt need for

action, and to note transitions that seem to have taken place as reflected in past events. The current situation of widespread civil dissidence will thus be viewed as involving numerous actors who hold various attitudes regarding desirable action to improve the lot of subjugated or underprivileged groups in the society, or to effect societal and moral reform.

A major assumption of the diagram is that, as a result of a person's experiences, he may shift from one such attitude or state to another. Alternative policies may affect the probabilities of such shifts in different ways, and thus may contribute to the bringing about of alternative futures. With the aid of this framework, then, we will attempt to say something about the alternative future courses which events might take. We can only hope that the inevitable shortcomings of such a deliberately over-simplified model will be outweighed by its conceptual usefulness.

Let us now examine the diagram in detail. (Figure 2).

O. No special action called for

The box at the top of the diagram represents the main body of the population, out of which the primary actors in the revolutionary drama are drawn. It comprises a wide range of positions along the dimension inert-unconcerned to active-concerned, and also along the dimension liberal to conservative. The basic premises are that no unusual actions are called for, progressive social change is taking place at a safe and appropriate rate, and normal political institutions and processes are adequate for the accomplishment of desirable change.

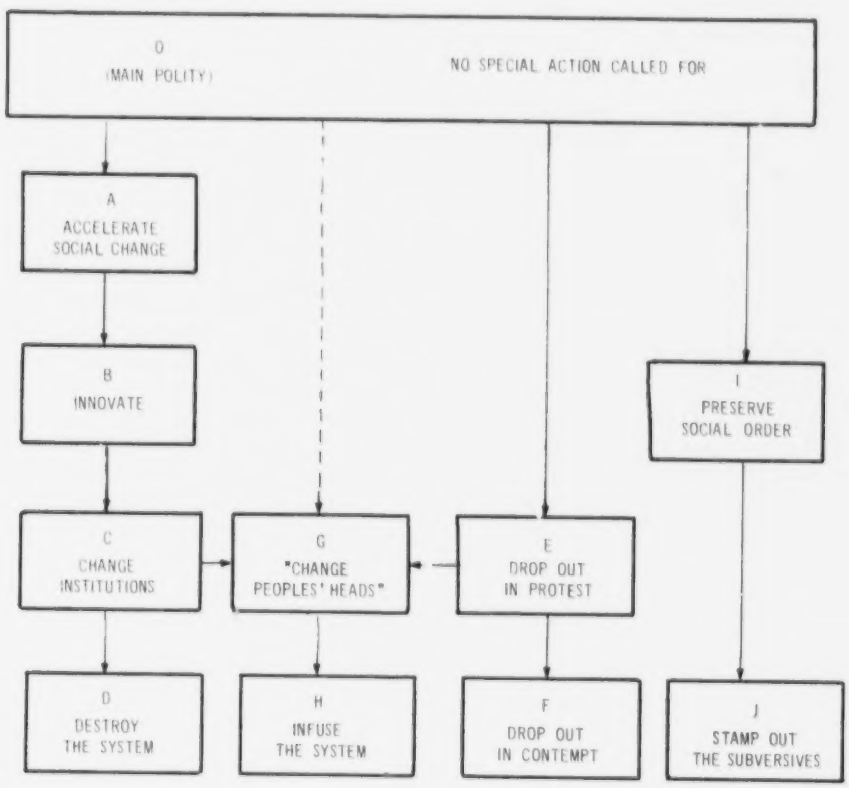
A. Accelerate social change

Box A represents the state of having recognised serious inequities and inhumanities in the society and of having concluded that acceleration of social change is required. Implicit is the assumption that declared intentions are genuine, and legitimated political actions are adequate to the needs.

Actions connected with civil rights issues involving persons with these premises included the rise of civil rights activity following Brown vs Board of Education (1954) from the Montgomery bus boycott (1955), forced integration of schools (1956 on), Southern lunch-counter sit-ins (1961), Civil Rights Act (1965). Persons of this attitude state were involved in the civil rights march on Washington (1963), the Economic Opportunity Act and the beginning of Community Action Programs (1964), the Elementary and Secondary Education Act and other portions of the War on Poverty (1965). Clearly the actors in these cases included both members of the economically and socially underprivileged minorities and persons for whom the demand for societal and moral reform was a more idealistic one.

Figure 2

STATE DIAGRAM OF PREMISES INVOLVED
IN CONTEMPORARY REVOLUTIONARY FORCES



Student reactions to the Vietnam war, the Draft, "non-relevance" of higher education, etc., began midly in the early Sixties (remember the apathetic Fifties?), gained momentum rapidly in 1964, and in a sense culminated in the youth-for-McCarthy campaign of 1968.

B. Innovate

State B in the diagram represents the position that speeding up of processes underway is not adequate to the need, and innovation is required. Many students and minority leaders came to this position as a consequence of disillusionment over the failures of type A responses. These persons lost faith in the adequacy of normal political processes, and arrived at the conviction that new types of political actions would be necessary to awaken moral sensibilities and to generate response to the problems.

Among the significant "tests" of the system waged by persons embracing this atttitude were the House Un American Activities Committee demonstration in San Francisco (1961), the Mississippi summer project and Mississippi Freedom Democratic Party at the Democratic Convention (1964), the Mississippi antifear march and the shooting of James Meredith (1966), and the stop-the-draft demonstrations of 1967, particularly at the Oakland Induction Centre and the Pentagon. Innovative political actions included the formation of Students for a Democratic Society (SDS) (with its initial emphasis on working with Congress) (1962), The Free Speech Movement (1964), initiation of experimental colleges and free universities (1966), NSA-sponsored tutorials for minority-group students (1963), and the first forms of Black Power (1966).

C. Change institutions

State B turned out for many to be a transition state, leading to the conviction that present forms of institutionalised power are intrinsically inadequate to deal with the massive social problems of the day, and, thus, that the solution to social ills must come through radical change of institutional forms. Since awareness of this inadequacy is obscured by the ability of the Establishment to enculturate and to co-opt, it follows that confrontations and other radicalising activities are necessary to bring about this awareness.

A subsidiary premise is that groups in power seldom share that power willingly. Hence, a group perceiving itself to be without legitimated power must fall back on coercion and at least the threat of violence to effect social change.

Among events involving persons of this persuasion were 1) the emergence (around 1967) of such major confrontation-instigating agencies as SDS, Black Student Unions, and the Black Panther Party; 2) major confrontations between students and police on campuses (1967-69) and student strikes (1968); 3) "street people" and police clashes over the "peoples' park" issue in Berkeley (1969); and 4) urban ghetto riots (1965-1968). Again, both the economically underprivileged and the disaffected privileged were involved, but with goals that significantly differed. (In terms of Maslow's need -concern levels, both deficiency-motivated and growth-motivated persons were involved, but their inner dynamics were different and at certain stages or on some issues they have parted company.)

The groups holding this radical premise comprise a wide range along the dimension of willingness to escalate the level of violence. This willingness depends, in part, upon the nature and severity of suppressive forces applied. The overall radical strategy has been made clear in the statements of radical leaders, and is simple enough in its logic. It is to continue to apply force, moving toward methods that are more and more economical of resources (in terms of losing fewer men to jail, hospital, and the morgue) and more and more difficult to suppress. Thus, the canonical sequence moves from mass demonstrations, strikes, and riots, through sabotage, terrorising, and urban guerilla warfare, to the weapon of last resort - selective assassination. The extremist end of this sequence corresponds to state D, the real political revolutionary. However, many of the militants seem to be moving from this premise to state G, the "psychological revolutionary". And we see some signs that severe repressive measures combined with little evidence of solid social change can lead many of this group to retreat into apathetic resentment, discouragement, and smouldering hate for the whole system.

D. Destroy the system

The basic premise represented here is that the whole system is evil and has to be torn down. Whereas some persons of persuasions C and G feel that the threat of "destroying the system" is necessary therapy to jolt people into awareness, this group means it. This point of view is represented by the positions of the Progressive Labour Party, by varioust Marxist, Castroist, and Maoist groups, and by extremist anarchist non-groups. It is patently true that the overall revolutionary movement is not solely Communist inspired in its origins; to exaggerate the contribution of subversive exogenous agents is as serious an error as to assume that they are not present at all. However, it is equally true that elements of the movement are closely allied with the International Radical Left.

E. Drop out in protest

Another revolutionary attitude represented in the diagram stems from the basic premise of the possibility of expanded consciousness. It becomes nationally significant in 1963 with the foundation by Harvard's Timothy Leary of the International Foundation for Internal Freedom (IFIF), promulgating the ethic "Turn On, Turn In, Drop Out." This psychochemical beginning led to the "hippie" phenomenon: widespread interest in Eastern philosophical religions and meditative practices, psychedelic light show, rock music and lyrics (with rock radio stations as a worldwide communication network carrying the revolutionary message); black-market drugs and the psychedelic movement in the name of "religious freedom", hippie dropouts, love and flower power, sexual freedom, and the establishment of communes.

F. Drop out in contempt

Some members of group E, with their new found "expanded awareness," took a good look at what man was doing to man in the social system, and moved from a position of "drop out in protest" to one of "drop out in contempt". With this viewpoint are often associated libertinism and unrepressed sensuality, flaunted hedonism, and general rejection of work, discipline, and conventional social amenities. Although the members of this group have removed themselves from the field of action, they are of concern both because of the loss of human resources they represent, and because they tend to become associated with drug abuse and related crime.

G. "Change peoples' heads"

Not all of the "turned-on" generation, however, view the dropout as the desired permanent state. Rather, for some of the dropouts it became more like the "withdrawal and return" of Toynbee and Jung. These persons tended to "re-enter" society with a new political awareness, joining forces (state G) with some of political activists who were "turning on" to the conviction that "the real revolution is not in the ghetto or on the campus, but in peoples' heads", and that without inner change, institutional reform alone will not bring necessary changes.

Here they find common cause with another group whose members sometimes refer to themselves as the "human potential movement" (represented by the dotted line in the diagram). If one wanted to pick a date for the beginnings of this component, the initiation of the Esalen Institute programmes in 1961 would be as suitable as any. From these beginnings at Big Sur the movement has grown to include well over a hundred "growth centres" and free-university programmes, and thousands of psychotherapists, sensitivity training and psychodrama group

leaders, sensory awareness teachers, yoga teachers, and assorted gurus.

Thus, the basic premise associated with this state is that necessary social change will come about only through widespread person-changing. To this end, its proponents have developed and use a "person-changing technology" as indicated in Table 1. Emphasis is on a dual awareness a) of the higher-consciousness nature of man and of the bankruptcy of the scientific-technocratic and behaviourist views of man, and b) of institutionalised inequity and inhumanity in the social system. The techniques near the top of the list in Table 1 tend to aim more at expanded self-awareness, and those near the bottom at heightened social awareness.

Table 1

ELEMENTS OF "PERSON-CHANGING TECHNOLOGY"	TYPICAL OUTCOMES
Meditation Yoga Psychedelic drugs Hypnosis, autohypnosis Psychosynthesis	Awareness of spiritual dimensions, of transcendental self, of the "hypnotic" or "encapsulated" nature of ordinary life
Sensory awareness	Sensitivity to feelings and emotions, beauty
Self-awareness exercises Psychotherapies	Sensitivity to human closeness, honesty, realisation there is nothing to hide.
Group therapy Sensitivity training Encounter groups Gestalt therapy Group nudity, marathons	Spontaneous response to experience, self-expression, individual autonomy, emotional freedom
Psychodrama	Removal of guilt and fear stemming from early training regarding morality and sin
Synanon games New Theatre (ridicule of Establishment, crudity and nudity, audience encounter)	Ego-reducing experience, awareness of ego-defence nature of social institutions and customs
Forceful disruption of normal social process Underground press Radicalising confrontations Deliberate provocation of "instructive encounters" such as police confrontations, black-white confrontations, etc.	Perception of oppressive nature of social institutions

H. Infuse the system

The number in this state is small but apprently growing. The basic premises are similar to G, with the additional premise that the best way to get radical change is to carry on a "subtle revolution", that is, while dressing and acting conventionally, to infuse the system and to be "in the world but not of it".

I. Preserve social order

The rapid rise of revolutionary thought and action in the last decade, particularly among the non-whites and the youth, has caused a considerable fraction of the polity to conclude that special action is called for to preserve the social order. In particular, the existence of states D and F is seen as constituting a serious social problem, requiring some sort of counter response from the system.

J. Stamp out the subversives

Some who may once have held similar opinions to I have moved on to the premise that all of these revolutionary views from B through H are subversive, anti-American, and must be stamped out. The right-extremist groups are exemplars of this position.

Alternative outcomes

This rather extended analysis of revolutionary forces, and of what might at first look seem to be but one of many indicators of future trends, has seemed justified because it is here that the forces shaping the future are focused. The issue in the revolutionary activity is the future. If the insurrectionist forces are seen by the populace and its elected representatives essentially as lawbreakers attempting to gain by coercion that which should properly be obtained by legitimate processes, the tendency will be simply to suppress them. If, in addition, a large dissident fraction of the polity persists in making demands for reform which they consider to be legitimate, this could lead us a long way toward a garrison-state kind of future in which a partially armed militant minority (consisting possibly of elements of militant blacks, other non-white groups, far-left labour, and idealist youth) is held in check by the overwhelming power of the military state.

Another possible sequence of future events is a period of disruptive violence followed by a restructuring of social institutions to accommodate a new power balance. This would be a course of events somewhat similar to that of the labour movement of 50 years ago. The "Establishment" (management and owners in the earlier case) perceives the

demand for sharing of power as illegitimate and threatening. They make attempts at token sharing that delay confrontation, but in the end fail to satisfy the developing radical consciousness. The "outs" increasingly resort to force and violence and the "ins" continue to counter with limited force. It becomes apparent that the rising tide of expectations and demands is not going to go away. Furthermore, the "outs" have the power to disrupt and incapacitate industries, social institutions, and social processes in general, to any degree they deem necessary as long as their numbers remain significantly large - and the repressive force limited. Thus, with the only other alternative being massive repression, which is unacceptable to the populace, the establishment is forced to accept the dissidents' demands for shared power. Social inventions (unions, collective bargaining techniques, etc.) are worked out to implement the new power balance. A consensus emerges that the new shared-power arrangement is workable and even seems more in line with our declared national and cultural values than was the previous arrangement.

One version of this latter "future history" would be characterised by the "buying off" of students by granting them some measure of power, and of minority groups by providing a measure of equality and security, thus thwarting or postponing the threatened revolution. That is to say, the major changes demanded by the revolutionary forces might be relinquished if enough secondary prizes were offered. This might leave the social, political, and economic structure of the nation relatively unchanged - at least temporarily.

On the other hand, a point of view more or less represented by state G in Figure 2 might ascend to dominance. In brief, this is the position that the present revolutionary agitation is in direct line of descent from the American Revolution, whose central aims were the securing for the individual of a) representation in the making of decisions which affect his destiny, and b) freedom to pursue self-fulfilment in ways that do not result in others being deprived of the same right. In the same line of succession is the social-reform component of the labour movement. In this view, the contemporary revolutionary forces tend to be seen as essentially an accompaniment to a drastic evolutionary jump which society, and perhaps man himself, is attempting to make. If indeed this interpretation comes to dominate, then national policy-makers will tend to use the opportunity provided by the militant pressure to accelerate progress toward the basic goals implicit in the founding of the nation, while continuing the necessary suppression of violence and of infringement of other's rights. A development which makes this course of history fairly likely is discussed in the next section.

The preceding discussion is based on a number of analyses of current social discomfort, as listed in the bibliography. The months

ahead will undoubtedly bring numerous additional studies which may fit into the framework presented here, or may furnish new or alternative insights. To whatever extent Figure 2 stands up in the light of further data, it may furnish a useful basis for comparing alternative policy choices. It is evident, for example, that partial views of these complex phenomena may lead to policies which drive individuals into states D and F (and hence build up the population in state J): other policies based on a more complete understanding might encourage movement toward states G and H.

However, the most important proposition emerging from these analyses is that the unrest appears to comprise a superposition of two quite dissimilar phenomena. One is a current version of the class warfare, significantly aligned along colour lines, which has been characteristic of human civilisation throughout history. The other phenomenon is uniquely a product of our high degree of technology and industrialisation. This is the revolt of middle class youth against middle class values and the technological society. Clearly it would be a great error to ascribe this second component of the disquiet to an international leftist conspiracy, or to interpret it simply as pampered youth challenging the authority of their elders. Rather, it is more accurately seen as a symptom of a much more fundamental malady of the entire society. Youth feels a sense of powerlessness arising out of the realisation that we have somehow lost control over our gigantic, Frankensteinian, technological-industrial machine. They know that they can count on a fair measure of material comfort and security; they find little of value in their promised place in the bureaucratic-technological society, where their talents will be exploited for the ends of the Big Machine. They sense that the society is on a collision course for real trouble, and that nothing short of a drastic shift in the implicit values and the organisational structure of the technological society will avert disaster. These two components, the perennial class warfare and the singular "great dissent", each have their own separate dynamics. Bad policy choices can result from taking only the first to be real, explaining away the second as an idiosyncrasy of the younger generation.

The analysis of current social unrest is vital to consideration of education's future roles. Not only does its fuller understanding give some clues as to the kind of future we may have to design education for. It also faces us squarely with the question of the kind of future education is to help bring about.

In the next section we shall examine a current which runs deeper still, and which may be in an even more fundamental sense an important part of the new youth dynamic.

V

A POSSIBLE UNDERLYING CONCEPTUAL REVOLUTION

Political revolutionaries and struggles of subjugated groups to redress the power balance are not new in history. (The "psychological revolutionaries" we examined in the last section are less familiar.) Likewise, cultural history records many instances of changes in values over time. Here and there in the literature on the future - i.e. in Platt (1966), Boulding (1966), Teilhard de Chardin (1959), Mumford (1956), Matson (1964), and Becker (1969) - we find suggestions that something much more infrequent in the history of man may be taking place, a major conceptual revolution.

Indeed, this phenomenon is so rare that one could argue that only once in the history of the Western world since Christianity rose to provide the first unified Western thought has there been a drastic shift in dominant, basic premises - namely that associated with the Protestant Reformation. Max Weber and his followers in sociology have contended that when a significant change occurs in a society it is the whole sociocultural system which changes, including institutionalised organisational forms, roles, norms, traditions, values, and basic belief premises. Thus, related to the belief-and-value shift from the theological view of the Middle Ages to the Protestant ethic and economic view of the modern Western world were, it is claimed, such social changes as the rise of modern corporate capitalism, the industrial revolution, and the subsequent explosive growth of technology.

There do seem to be superficial parallels, at least, between events of the past decade and those of the 16th century. That period, too, was one of multiple revolutions:

- The Protestant revolt with its anabaptist groups reminiscent of modern student protest groups.
- The challenge of a new economics in the rise of capitalism,

- The beginnings, with Copernicus, of the scientific revolution,
- A revolutionary "age of exploration and discovery",
- The commercial and price revolution - rearrangement of social classes, redistribution of wealth, and urban growth,
- Redistribution of authority - political centralisation and nationalism, substituting secular for religious authority,
- Technological revolution (the printing press).

If, indeed, the contemporary manifold evidences of revolutionary ferment are related to a shift in dominant belief-and-value assumptions within the culture, such a shift may well bring as pervasive and varied changes in the society as accompanied the rise of the Protestant ethic.

Evidences of a shift in basic-assumptions

The evidence we shall examine briefly indicates, first of all, an increased tolerance in the popular culture for belief systems which tend in the metaphysical or transcendental direction, in contrast with the agnosticism and sceptical materialism of the post-World War I period. Secondly, it indicates an opening up of the basic presuppositions within science to allow conceptual models not limited by the positivistic premise.

Aldous Huxley (1945) was one of the first modern writers to suggest that an age-old set of basic assumptions about the nature of man was showing new strength. We shall borrow his term, "The Perennial Philosophy."

> " Philosophia Perennis - the phrase was coined by Leibniz; but the thing - the metaphysic that recognises a divine Reality substantial to the world of things and lives and minds; the psychology that finds in the soul something similar to, or even identical with, divine Reality; the ethic that places man's final end in the knowledge of the immanent and transcendent Ground of all being - the thing is immemorial and universal. Rudiments of the Perennial Philosophy may be found among the traditionary lore of primitive peoples in every region of the world, and in its fully developed forms it has a place in every one of the higher religions. A version of this Highest Common Factor in all preceding and subsequent theologies was first committed to writing more than twenty-five centuries ago, and since that time the inexhaustible theme has been treated again and again, from the standpoint of every religious tradition and in all the principal languages of Asia and Europe."

The basic proposition of the "Perennial Philosophy" is an experimental one, that man can under certain conditions attain to a higher awareness, a "cosmic consciousness", in which state he has immediate knowledge of a reality underlying the phenomenal world, in speaking of which it seems appropriate to use such words as infinite and eternal Divine Ground, Brahman, Godhead, or Clear Light of the Void. From this vantage point, one's own growth and creativity, and his participation in the evolutionary process, are seen to be under the ultimate direction of a higher centre (Atman, the Self of Vedantic writings, the Oversoul). Ordinary perceptions of one's life and of one's environment are likened to the perceptions of a hypnotic trance. Such phenomena as extrasensory perception, precognition of future events, levitation and other psychokinetic events, "instant" diagnosis and healing, etc., are only extraordinary, not a priori impossible.

The basic assumptions of positivistic science stand in relationship to the Perennial Philosophy much as Newtonian mechanics relates to relativistic physics. They are in no way invalidated for those aspects of human experience to which they are appropriate, but comprise a special case, a limited form of the more general theory. Similarly, the philosophies of materialism and idealism are to each other as the wave and particle theories of light and matter: each fits the world as seen with a particular mode of observation, and a complementarity relationship holds between them.

Of course the Perennial Philosophy is not new to Western culture. It is present in the Rosicrucian and Freemasonry traditions. Its symbolism in the Great Seal of the United States, on the back of the one-dollar bill, is testimony to the role it played in the formation of this country. It also appears in the Transcendentalism of Emerson, the Creative Evolution of Bergson, and the extensive writings of William James. Whether one ascribes its recent popularity to increased intellectual openness and tolerance or to anxiety brought on by the nuclear threat, indications abound that increasing numbers of persons seem to be taking its premises seriously. Rising book sales in religion, metaphysics, transcendental philosophy, Eastern religious philosophies, and parapsychology indicate growing interest in these related areas. Contemporary song lyrics - e.g. the rock music of Dylan, Donovan and the Beatles; the recent "Age of Aquarius"; and the melodic "On a Clear Day" ("rise and look around you, and you will see who you are") - contain numerous subtle and not-so-subtle references to Perennial Philosophy viewpoints. Metaphysically oriented churches, societies and study groups are much in evidence. Courses and lectures on Eastern religious philosophies are well attended in the Free Universities, the 100 or more Esalen-type growth centres, university extension courses, adult education courses, etc.

Part of society's thus far negative reaction to monistic and Eastern kinds of beliefs as they have appeared in the hippie culture, the drug scene, and numerous cults, has been due to the fear that they would lead to quietism and withdrawal, and, therefore, would undermine the social structure. Although it is true that these beliefs have been associated with the Eastern world, there is in fact nothing in the Perennial Philosophy premises which is contrary to virile and active participation in economic and political affairs. Neither are these premises in any way contrary to a high-technology society; they only say something about the ends to which that technology would be put. The kind of society which Erich Fromm talks about in the Revolution of Hope, or John Galbraith in the New Industrial State, or Michael Harrington in The Accidental Century is completely compatible with the Perennial Philosophy premises. Such a society would, with all its high technology, tend to be education- and growth-centred. Its education would, like the Greek ideal as described in Werner Jaeger's Paidea, place high emphasis on "the search for the Divine Centre".

Beginnings of a new science

Even more important than indications of a shift in the attitudes of the public at large, which by itself might appear to be a mere fad, are indications that scientists - persons with recognised scientific training who are on the staffs of research organisations and universities with high standards and who hold membership in recognised scientific associations - are manifesting more and more interest in developing a science of ordinary and extraordinary subjective experience. The study of "altered states of consciousness" is not completely new, of course. The phenomena of hypnosis have been studied in a scientific way, off and on, for at least a century and a half. Phenomenology has been a sporadic influence in psychology. Freud's psychoanalysis and its offshoots have attempted to probe the unconscious processes.

Many of the pioneering works in this area have assumed the appropriateness of premises akin to the Perennial Philosophy, e.g. F.W.H. Meyers' Human Personality and Its Survival of Bodily Death, Richard Bucke's Cosmic Consciousness, Pitirim Sorokins's The Ways and Power of Love, not to mention the writings of numerous Vedanta, Sufi, and Zen scholars. Among modern psychotherapists whose works fit into this same basic philosophical framework are C.G. Jung, Roberto Assagioli, and Hubert Benoit.

New scientific journals implicitly friendly to the Perennial Philosophy premises include the Journal of Transpersonal Psychology and the Journal for the Study of Consciousness. At the popular level, we

have the new and glossy Psychic, a magazine "devoted to every aspect of psychic phenomena and related topics".

Research activity is currently significant in at least three approaches to altered states of consciousness: Feedback of EEG signals, psychedelic chemicals, and classical (by which we mean sensory deprivation, yoga, autophynosis, hypnosis, meditation, etc.). It should be noted that there are two recent and significant advances in this area. One is increased access to, and control of diverse states of consciousness making them more available for exploration. The other is the appearance of physiological correlates to altered states [EEG, EMG, GSR, REM, (electro-encephalogram, electromyogram, galvanic skin response, rapid-eye-movement) etc.]. This latter is of extreme importance in a philosophy-of-science sense. The scientist of subjective experience is now much more in the position of the physicist studying an electron, or the astronomer studying a galaxy, in that he can say, "Here is a phenomenon (dream, satori state, etc.) which defies strict definition, but which I can study through various correlates (alpha waves, rapid-eye-movement, verbal report, observable behaviour, etc.)." In effect, it means that the barrier between objective, "public" data and subjective, "private" data is gone for good, and the legitimated boundaries for scientific scrutiny are thus extended.

Characteristics of the new science

The science of man's subjective experience is in its infancy. Even so, some of its foreshadowings are evident. With the classification of these questions into the realm of empirical enquiry, we can anticipate an acceleration of research in this area. Consequently, there is now hope of consensus on issues - especially value issues - which have been at the root of conflict for centuries (just as earlier there came about consensus on the place of the Earth in the universe, and on the origin of man). The new science bids fair to incorporate the most penetrating insights of psychology, the humanities, and religion. These developments will have profound impacts on goal priorities in society, on our concepts of education, on the further development and use of technology, and perhaps (as in the case of the Copernican revolution) on the distribution of power among social institutions and interest groups.

Young and incomplete as the science of subjective experience is, it nevertheless already contains what may very well be extremely significant precursors of tomorrow's image of man's potentialities. Space does not permit documenting them here*; however, the following three

* See W. W. Harman, Belief Systems, Scientific Findings, and Educational Policy, EPRC Research Note No. 6747-4, Stanford Research Institute, November, 1967.

propositions have accumulated an impressive amount of substantiating evidence:

- The potentialities of the individual human being are far greater, in extent and diversity, than we ordinarily imagine them to be, and far greater than currently in-vogue models of man would lead us to think possible.
- A far greater portion of significant human experience than we ordinarily feel or assume to be so is comprised of unconscious processes. This includes not only the sort of repressed memories and messages familiar to us through psychotherapy; it includes also "the wisdom of the body" and those mysterious realms of experience we refer to with such words as "intuition" and "creativity". Access to these unconscious processes is apparently facilitated by a wide variety of factors, including attention to feelings and emotions, inner attention, "free association", hypnosis, sensory deprivation, hallucinogenic and psychedelic drugs, and others.
- Included in these partly or largely unconscious processes are self-expectations, internalised expectations of others, images of the self and of the limitations of the self, and images of the future, which plan a predominant role in limiting or enhancing actualisation of one's capacities. Such images and expectations tend to be self-fulfilling. (Much recent research has focused on the role of self-expectations and expectations of others in affecting performance. Research findings are buttressing the intuitive wisdom that one of the most important characteristics of any society is its vision of itself and its future, what Boulding calls "organising images". The validity of the self-fulfilling prophecy and of the self-realising image appears to grow steadily in confirmation.)

Assuming that the evidence for these propositions continues to mount, substantiating them and supporting their further extension, they will have the most profound implications for the future.

Relation to revolutionary forces

The real significance of a science of subjective experience and "altered states of consciousness" is that it is in this area that our individual and social values are experientially and historically roted. The development of such a science would redress what in retrospect is a puzzling discrepancy between the audacity with which man has pursued the physical, biological, and social sciences, and the timidity with which

he has contemplated the possibility of developing a moral science. Already in the field of clinical psychology several scientists are proposing to formulate through their researches "a natural value system, a court of ultimate appeal for the determination of good and bad, of right and wrong" (A. H. Maslow), with "universal human value directions emerging from the experiencing of the human organism" (Carl Rogers). What may be in the offing may be a new means of obtaining consensus on value questions, by submitting them to the test of what is ultimately wholesome for the whole man.

As previously noted, young peoples' concern with "awareness-expanding" and "consciousness exploring" activities is intimately related to their own reformulated value convictions. Such explorations have tended to lead to espousal of the Perennial Philosophy, with its strong affirmation that individuals do make a difference, and that values do have an eternal base. These convictions in turn reinforce demands for a person-centred, rather than establishment-centred,, education, and for a society adapted to transcendental (or at least humane) man rather than just economic man.

If materialism was the philosophical base for the Old Left, it appears that transcendentalism may be coming to serve the New Left in a similar role. The revolutionary press intersperses, among its political discussions and diatribes against various aspects of the social system, articles on Eastern philosophies, hip drug use, the human potential movement, transcendental meditation, and Krishna consciousness. On the other hand, Cosmos, the montly newspaper of "the occult, psychic phenomena, spiritualism, ESP, metaphysics, New Age philosophies, and allied subjects", publishes articles on the youth revolution, the crisis in values, the generation gap, and social injustice. The far-flung network of "rock stations", broadcasting revolutionary messages in the lyrics of their songs and in their parodies of news programmes, also carry interviews and lectures relating to religious, metaphysical, psychic, and esoteric topics, and as a public service, announce the meetings and fund raising campaigns of religious study groups, Subud, Scientology, Vedanta, and assorted similar organisations. In his penetrating analysis of the youth revolt, Roszak (1969) admits that the new religious outlook of the young tends ot be "a phantasmagorial of exotic religiosity ... If one scans any of the underground weeklies, one is apt to find their pages swarming with Christ and the prophets, Zen, Sufism, Hinduism, primitive shamanism, theosophy, the Left-Handed Tantra... At the level of our youth, we begin to resemble nothing so much as the cultic hothouse of the Hellenistic period, where every manner of mystery and fakery, ritual and rite, intermingled with marvellous indiscrimination". Notwithstanding, he notes, there is a unifying theme. "The world view of Lao-Tzu, of the Buddha, of the Zen masters... has become one of the strongest strains of the counter-

culture ... The counter-culture is, essentially, an exploration of the politics of consciousness".

It is obviously too early to tell whether the shift in operating values and basic premises, as we have described it, is taking place in a lasting way. If it does, we may expect to see as radical changes in the socio-cultural system as when the belief system of the Middle Ages gave way to the Protestant ethic and capitalistic economics. If such a shift takes place, it would tend to support the "person-centred society" described in Section III and the "new values" and "American origin" values as summarised in Section IV.

VI

META-ISSUES OF THE FUTURE

Thus far, we have examined manifest trends and countertrends, and have examined several aspects of the alternative futures among which we, as a society, are in the process of choosing. We have argued that, in a fundamental sense, choosing the future involves choosing a set of beliefs and values to be dominant. Because the current issues in the dissidence of youth and minority groups may be assumed to be indicators of the choices with which the society is faced, we examined these in some detail. Various bits of evidence pointed to the possibility of a conceptual revolution in process, and we looked at those.

We are now, at long last, ready to look at what we might be able to summarise out of all of this that is directly relevant to educational policy. Let us, first of all, introduce a useful concept for our discussion, "choice point". By choice point is meant a point or period in time when the society as a whole makes a commitment of psychic, human and economic resources in a particular direction. The associated decisions are multifold and are diffused in level (political, institutional, and value-belief), in time, and in space (some in Washington, some in other capitals, some in Wall Street, etc.). Some are made with awareness; others may be made by default, or with relative unawareness of making any decision at all. The choice is not necessarily associated with a major decision of any one identifiable agency, but is rather an aggregate of decisions made more or less simultaneously (in the long-term historical sense) by different elements of society. An example would be the choice to provide some sort of old-age security, which reached its present form as a consequence of numerous State and Federal laws and amendments, and a host of less identifiable decisions by unions, committees, employers, etc.

In the preceding discussions we have argued that the society is presently involved with such a choice point, in moving either toward what we termed the "second-phase industrial" society or the "person-

centred society". It is obvious that no one in the White House or anywhere else will actually make such a decision. But, in effect, through a multiplicity of decisions ranging from Congress and the Pentagon to the local school board and industrial management, the choice is in process of being made. At one level a component decision may have to do with pollution of a local river, at another with the structure of regional government, at another with the values inculcated in the schoolroom. The form of future education will be much affected by which way this choice is eventually made. On the other hand, educators themselves have the opportunity to affect this choice, at least in part. For, just as the beliefs and values of a society determine the kind of educational system it chooses to set up, so does the educational system affect what beliefs and values are either perpetuated or changed.

An important component of this choice rests in the decision of how to handle the current forces of political dissent and insurrection which exist particularly among our youth and minority groups, since the issues posed by these groups are in considerable measure these same issues. The possibility of a conceptual revolution, which we examined in Section V, is also involved in this choice and, as we have also seen is intimately connected with the youth revolt. In addition, we showed that the premises of the Perennial Philosophy are compatible with the person-centred society, although not demanded by it.

Now let us look at the changes in society one more way before summarising how all of this relates to education. From all of the trends and alternative futures and revolutionary issues there emerge some meta-issues, or "issues behind the issues". We shall single out four. These meta-issues may seem to be at the level of questions about the nature of the good life and the good society. And indeed they are. But they are also implicit in such questions as what shall we do about local control of schools, drug use in high schools, student rebellion over school rules, sensitivity training, Black Studies programmes, the role of vocational education, the quality of ghetto schools, new career ladders for minority-group teacher candidates, and person-centred curricula. Indeed, the choice the society as a whole makes on these meta-issues will determine in considerable measure what courses the schools will be free to take on the more specific issues.

Thus, far from being theoretical and impractical, these meta-issues are the important ones to keep our eyes on. We select four as being among the most crucial. We shall label them as four "crises", using the word in its root meaning as a turning point, recognising that they may not seem to merit the connotation of emergency which is often associated with that word. But these issues are the keys to the "unsolvable macro-problems" of Section II. The four we identify are, then, a crisis in human image, a crisis in authority, a crisis in economic values, and a crisis in pluralism.

The crisis in human image

We have already noted, in discussing the possible conceptual revolution, that a conflict exists between the basic premises of a democracy - that man is, by virtue of his transcendental nature, endowed with reason, will, and a valid sense of value - and the reductionistic, deterministic, and physicalistic premises of the behavioural-science, sociopolitical theory that our universities impart to their annual crop of budding sociologists and political scientists.

The young social scientist receives a background in a sociology which has shifted from its earlier emphasis on the semi-philosophical "humanities" approach to an emphasis on techniques and empirical studies, with the implication that man is a creature of his drives, habits and social roles, and in whose behaviour reason and choice play no decisive part. In the courses he is offered in psychology this point of view is likely to be an inconsequential accompaniment to behaviour governed by external stimuli and instinctive urges. His political science tends to focus on the processes by which public policies are made, and to be relatively little concerned with their contents. Amid the measurement of attitudes, population movements, organisational trends and political behaviour, and the modelling of society and governments, little attention is given to the historic questions relating to man, his condition and his destiny.

On the other hand, the concept of a transcendental, choosing, ultimately responsible self is essential to the entire theory of democratic government. It underlies the assumption that the criminal is responsible for his act (while recognising in providing rehabilitation opportunities that his anti-social traits may have their roots in environmental conditioning). It is basic to the assumption in the judicial process that the judge can meaningfully make a normative judgment. Matson (1964) has given a particularly cogent analysis of the consequences of over-emphasizing the objective perspective in political affairs (as contrasted with a complementary relationship between objective and human perspectives).

Drucker (1939) was one of those who early rose to sound the demise of tne image of "merely Economic Man" : "The belief in the desirability and in the necessity of the sovereignty and autonomy of the economic sphere is disappearing: and with the belief, the reality ... It is the characteristic feature of our time that no new concept lies ready under the surface to take the place of Economic Man". As we noted earlier, such a new image may be emerging now.

Mendel (1969) speaks of the youth rejection of the Economic Man image as "the Great Refusal against that pitiful caricature of man created

by five centuries of urban, technological and scientific progress - homo economicus. The essential accusation of the Great Refusal is directed against the subordination of human experience to the economic processes of the consumer society and its increasingly more absurd products, to the aggressive militarism that at least in our case has become so tightly interwoven with this society, and to the gigantic, impersonal organisations through which it all functions".

The ramifications of this conflict go much further than has been indicated so far. The kind of educational system and educational goals a society sets up, the way it handles the problem of poverty, the priorities it gives to aesthetic considerations, the extent to which it considers its citizens' need for easy access to communion with the nature, the uses of leisure it fosters - all these aspects and many more are affected by the image of man held by the society. Currently in our society a potent emerging force pushes for a change in that image, in the direction of transcendent man; but thus far the power is on the side of reductionists.

The crisis in authority

If the issue of the image of man is crucial but unobtrusive, the issue of authority is immediately and obviously before us. We have witnessed in recent decades the hastening erosion of the authority of the parent, the teacher, the scholar, the church, the law and the state. Today's youth deeply questions the meaning of the nation's policies and apparent aims. We need only to remind ourselves of the change, within a generation or two, in the connotations of the military uniform, the American flag on foreign soil, the policeman's badge, the draft card, and patriotism.

This issue is, essentially, one concerning the balance between authority based upon power and authority based upon voluntarily given respect. The central fact of our day is that a significant fraction of the population, largely blacks and youth, have concluded that established authority on national and local levels is illegitimate - that is, it does not adequately represent their interests, and it is not based on trust, nor on a general consensus.

Varied is the speculation as to how this erosion of legitimacy of authority came about. Flacks (1969) listed and analysed its possible origins and correlates; his list plus a few others from other sources includes:

- Widespread decline of commitment to "middle class values" and to the capitalist ethic, while political and institutional elites continue to represent themselves in those traditional ways;

- Rapid growth of a sector of the middle class whose status depends on high education rather than property, and who tend to be critical of traditional capitalism and sceptical about the sanctity and benevolence of established authority;

- Child-rearing practices by that group, and by significant minority cultures, which have cultivated doubts about established authority;

- Extension of education, leading to increased feelings of competence, self-esteem, efficacy and potency, which in turn emphasizes self-awareness rather than socialisation as a suitable guide to behaviour;

- Transformation of the American family in the directions of greater equality, encouragement of self-expression and autonomous behaviour, and fewer parental demands for self-discipline;

- The Prohibition experience in particular, and, more generally, widespread disregard of laws restricting private sexual behaviour and other sumptuary laws;

- Stringent punitive laws regulating marijuana usage, while such usage is considered by a rapidly increasing minority (adults as well as youth, teachers as well as students) to be a desirable substitute for the cocktail (a repetition of the Prohibition experience);

- Increased distrust by Negroes arising from liberal promises which they view as unkept, and from experiences which repeatedly reinforce their conviction that the system is biased against them;

- Harassment of blacks and hippies by police;

- Reaction to the unpopular draft and to the "immoral" Vietnam war;

- Specific incidents of dishonesty (e.g. 1959 television quiz show scandals, Eisenhower denial of U-2 spying, Stevenson U.N. denial of Bay of Pigs Plans);

- Lowering of faith in integrity of scholars and scientists (because of university involvement in military research, "quantification" and "dehumanisation" of the social sciences, misinformation they have provided regarding marijuana and LSD).

Flacks provides several generalisations about the problem of maintaining the legitimacy of the authority structure:

- Individuals tend to attribute legitimacy to authority when the exercise of that authority is perceived as beneficial to groups, individuals or values to which that individual is committed. Legitimacy tends to be eroded if members of minority subcultures experience a persistent pattern of inequity, or if groups

perceive significant discrepancies between their goals and those of the larger society;

- Attribution of legitimacy is a function of trust, which in turn depends upon such matters as the objectivity of the authorities in mediating conflicts, the implementation of equality before the law, the openness of the political system to dissenting views, the trustworthiness of statements made by national leaders, and the degree to which officially espoused policies are actually implemented;
- Individuals tend to attribute legitimacy to authority if they perceive a generalised consensus supporting legitimacy;
- A person's sense of competence, potency, efficacy, is related to his response to different kinds of authority. Persons with a low sense of competence will tolerate authoritarian power; for those with high competence the legitimacy of authority depends on the degree to which they have access to the decision-making process, or believe that their judgments are taken seriously by their superiors, or have the freedom to shape their own situation without reference to higher authority.

These considerations suggest that the restoration of the image of America as committed to equality among all men and justice under law, and the development of a sense of legitimacy of established authority, are among the most urgent national educational and political tasks of our day. They are tasks not just for the schools, but for the law enforcement agencies, for the political leadership, and for the policy as a whole.

The crisis in economic values

We have discussed this earlier so it requires only brief mention here. The essential issue is the extent to which economic values shall be de-emphasized, and values which are non-economic, at least in the strict sense, shall be a part of our operative (as contrasted with declared) values. The issue is central to resolution of the revolutionary forces. It becomes specific in spelling out the goals for programme budgeting, or listing the benefits in a cost/benefit analysis, or evaluating achievement of educational objectives, or deciding what kinds of educational experiences shall be offered out of public funding, or planning for continuing education. If one is persuaded that education has any effect at all in changing values, the issue becomes a crucial one for the schools: What values shall be fostered?

The crisis in pluralism

A simple society can have a single culture; a complex modern civilisation such as the United States cannot. Thus the question is not whether we shall have a multimodal culture with a variety of behaviour patterns and norms in different socio-economic, educational, religious and ethnic groups - no doubt we shall. Rather, the real question is whether we shall have mutual hostility and exploitation of weaker groups by stronger ones, or we shall have mutual respect and co-operation between diverse groups.

In a recent essay entitled "Psychology and the Social Order", Lawrence Frank wrote about the challenge of this issue as follows: "A social order which tolerates such wide-ranging pluralism of norms must seek unity through diversity. This means recognizing and cultivating differences while simultaneously enlisting people's loyalty and allegiance to a core of conduct and relationships. Only education and persuasion, not force, can build a social consensus out of these massive and varied elements ... Social change and improvement must come through the concert of a population composed of individual personalities ... Instead of relying chiefly upon legislation, as in the past, we (must) begin to think how each person may become self-consciously aware of his role as a participant in his social order".

The issue of pluralism with respect to subcultures arises in the educational world most directly over such specific questions as Black Studies programmes and community control of schools. In broader form it lies behind the issues in teacher strikes and student rebellions.

VII

IMPLICATIONS FOR EDUCATION

We warned at the beginning that, no matter what the title of this paper might seem to suggest, we would not be predicting the future and deducing from that future what the schools should do. Rather, we said that it was our hope to provide a useful framework for thinking about the future as it takes form through the events of the present.

Thus, this last section is brief, attempting only to demonstrate how the considerations we have raised in the earlier portions of the paper bear on educational issues.

Educational goals

The basic issue for education is the choice of goals, all else follows this. What is it we are trying to do? But for this statement to make sense we have to be using the word "choice" in the sense we used it previously - a commitment of psychic, human and economic resources in a particular direction. In that sense the choice is not necessarily what the society or its leaders may declare it to be. The choice is, rather, inferred from where the society puts its resources.

Let us move one step further and argue that the implicit choice of goals can be inferred from the outcomes. Few will want to go all the way with that statement, but it contains an important germ of truth. Evidence mounts that in multifold subtle and unconscious ways humans communicate more than they consciously mean to communicate, and influence events in ways they do not consciously intend. Classical examples are the "Freudian slip" and the self-fulfilling prophecy. Thus, if we find that the operations of the school system tend, in fact, to perpetuate class differences with over-representation of Negroes and Mexican-Americans in the under-class, we are forced to consider the question of whether this is not an inferred, if largely unconscious, intent.

This is mainly to say that the goals of the educational system are much more a function of the choices the society has made, or is making, than they are a consequence of the declarations of educational leaders. When George Counts in 1932 issued the inspiring challenge, "Dare the schools build a new social order?" an appropriate answer might have been, they can't. The social order can barely build new schools. On the other hand, if the society were to move in the direction of the "person-centred society" as discussed in Section III, the educational system would undoubtedly bear great resemblance to that advocated by Counts and Dewey and G. Stanley Hall.

Looking at this issue in another way, we might say that choices of educational goals are made in the society on at least three levels. First, the society itself makes a pervasive choice regarding the overall direction of its movement (such as those discussed in Sections III and IV). This choice tends to set the constraints on what, in the long run, will be fostered, tolerated or opposed. A movement within the school system which is not aligned with the general drift of the larger society, for instance, is unlikely to persist. Secondly, the society makes a decision as to what tasks will be assigned to educational institutions and what tasks to others. For example, the fostering of socially desirable attitudes toward authority might be a task divided between educational institutions and law enforcement. The development of a wholesome self-image in the child might be assigned in some proportion to the institutions of education, religion and psychotherapy. The first two types of choices are made largely outside the educational institutions Thirdly, then, choices are made within the resulting context as to what the more specific objectives shall be, with what priorities they shall be carried out (that is, what resources shall be allocated), and in what manner they shall be accomplished. These choices are determined partly within and partly outside of the educational institutions.

Thus, if the society moves more or less in the direction of the "second-phase industrial" society we can anticipate increased emphasis on the role of education as playing a major part in accomplishing social goals and alleviating social problems (poverty, racial discrimination, challenges to national prestige, environmental deterioration, etc.). There will be strong reliance on "behaviour shaping" approaches, involving the detailed specification of desired behaviours to be imparted by contingency management techniques. This work will be based on a sound behavioural-science infrastructure. The roles of evaluation and credentialling - i.e. assessing suitability for the various vocational and professional tasks which the society requires for its functioning - will probably remain important. Continuing education, in the form of vocational retreading, will also have an important place.

On the other hand, to whatever extent the person-centred orientation becomes dominant in the society at large, this will be reflected in the schools. Goals will shift in the direction of placing more emphasis on students becoming effective thinkers and learners, developing enquiry and problem-solving skills, acquiring social skills, and developing emotional awareness and self-identity. Attention will be diverted from achieving behavioural objectives to setting conditions for spontaneous learning - especially to fostering feelings of safety and trust, and freedom to explore and enquire, and to providing a responsive environment and directed challenges. Reduced emphasis will be placed on absorbing specialised information and developing specific vocational skills. Less attention may also be given to grading, credentialling, and otherwise labelling persons.

Michael (1968) argues that drastic changes in education are necessary if we are to be prepared for the future:

"We must educate for empathy, compassion, trust, non-exploitiveness, non-manipulativeness, for self-growth and self-esteem, for tolerance of ambiguity, for acknowledgment of error, for patience, for suffering.

"In the first place, those social-aid roles, the roles that are meaningful because they relate a person to a person, require such capabilities ... The other reason for deliberately undertaking this kind of education is that those who will have the tasks of planning and leading must have a far deeper feel for and understanding of themselves as selves and as a part of other persons, other selves, than they usually do today ... without such educated, sensitized, emotional resources, leaders will continue to be too rigid, too defensive, too remote from themselves and thereby from others to have the flexible and bold state of mind that will be needed to cope humanely and imaginatively with plans and turmoil, order and disorder. It will take special efforts indeed to enlarge the emotional underpinning of those who recruit themselves to use the social technologies needed to run a complex society".

Unfortunately, significant changes in education do not come as direct consequences of such rational arguments. Only when the whole society shifts, for whatever subterranean reasons, toward a less economic and more humanistic orientation, are we likely to see much shift in education toward the goals described in Michael's plea.

Plausible educational trends

Thus we see that while there is considerable indication that educational goal priorities are changing, such a change is inseparably linked

to more inclusive social meta-issues. Let us comment briefly on various other possible educational trends which are described in the various writings on education for the future:

- Expanding fraction of the populace involved in education, and an expanding fraction of the national income going to education. This will no doubt be true no matter where in the range of plausible futures we find ourselves heading. The nature of that education, however, will be vastly different depending on whether we head for the "person-centred" society, the "second-phase industrial" society, or a period of violence followed by a garrison state.

- New conscious role for education to play a major part in accomplishing social goals and alleviating perceived social problems (national prestige, poverty, social order, racial conflict, etc.). This, again, will probably be true whichever future we select, but what the social goals are, and what role will be played (e.g. maintaining social class differences vs accelerating social mobility) will vary.

- Increasing involvement of education with, and functional relationship to, other social institutions. The balance between this trend and the counter-trend toward autonomy and community control of schools, diversity and free choice among schools will be much influenced by how values shift.

- Extension in duration of the educational period, both through early-childhood education, and through more education for adults, in the form of post-secondary schooling, vocational retraining, continuing education, parent education, and family education. Again, the overall trend is probably to be expected for any of the plausible futures, but what is done with those additional educational years would be very much a function of the path the society takes.

- Extension of education to industry, community and home. Again, the form this takes will depend very much on educational goals.

- Concurrent replacing sequential arrangement of education and work as we move into "the learning society". One moving force is the rapidly decreasing half-life of occupational skills. Another, in the "person-centred" future, is the synthesis of mind-forming work and educative episodes as the central activity of a self-rewarding life.

- Increasing departure from traditional methods of instruction. It seems clear that classroom and lecture schools as we have known them are a thing of the past. Overall direction taken by the future society will be determinative as to whether the emphasis is on educational technology for systematisation, efficiency in achieving

behavioural objectives, and economy, or on new opportunities for individualised learning opportunities for open-ended growth.

- Competition reduced by individualised programmes is a possible trend for which there is considerable pressure. Whether it materialises depends very much on which alternative future the society moves towards. Competition as a stimulus toward excellence has salutary effects. On the other hand, in some forms it operates to lower self-respect and self-expectations, and conflicts with educational goals.

- Increasing fraction of educational costs will be obtained and distributed on a national basis, since this seems necessary even to approach equality of educational opportunity. This trend is not necessarily incompatible with strong local control of schools.

- Extension of power and control to new groups - teachers, students, minority groups, etc. This represents a long-term trend in the society in general. The rapidity with which the power sharing takes place is related to the resolution of the pluralism issue. The extent to which a student shall have control of learning content and sequence depends upon how the educational goals issue is resolved.

- Increasing blurring of the distinction between vocational and academic education, quite possibly to the point of eliminating narrow vocational training from elementary and secondary schools altogether. Pressure will continue to rise to eliminate the labelling-as-inferior which tends to occur to students placed in vocational training courses.

- More differentiation of learning-facilitation roles (teaching assistants, aides, etc.). This seems a likely trend with any of the alternative futures.

- Movement towards an atmosphere of shared learning, non-authoritarian attitudes, mutual respect between facilitators and learners, deprofessionalisation, seems a possible trend which is compatible with the person-centred society, but not with more authoritarian futures.

Education's necessary task

The temptation is strong in us to ignore forecasts of unpleasant events. When student use of psychedelics had just started, the clear forecast was that if the course of highly punitive legislation and complete proscription were attempted, all the ills of Prohibition days were an inevitable consequence. This knowledge failed to avert the adoption of exactly that course.

Similarly, present forecasts of environment deterioration, population pressures, traffic congestion, famine, Third-World uprisings, radioactive waste, agrichemical contamination, water pollution, and a host of similar indicators of social dysfunction, spell inevitable trouble ahead. Yet we procrastinate. If the analysis of "unsolvable macroproblems" in Section II is at all on the mark, these troubles will not be avoided by the usual muddling through. A drastic and rapid shift in orientation is imperative, on the part of the entire industrially developed segment of the world. Nothing less than a new guiding philosophy will do.

Ferkiss (1969) outlines three basic and essential elements for such a new philosophy. First is what he terms a "new naturalism", which affirms that man is absolutely a part of nature, a universe, that is always in process of becoming. The second element, "the new holism", recognises that "no part can be defined or understood save in relation to the whole". The third, "the new immanentism", sees that the whole is "determined not from outside but from within". It follows from these that meaningful social policies must be ecological in character, that is, they must be based on a recognition that any decision, any change, affects everything in the total system. Men's actions and the forces they set in motion are all part of the developing whole: "every part of the whole has power and influence: every living particle is a source of direction and life". If man is to acquire the necessary sense of responsibility for the impact of his own actions on the shaping of the whole, he "must so internalise these ideas and make them so much a part of his instinctive world view thay they inform his personal, political and cultural life".

At the same time that Ferkiss and others argue that a new guiding philosophy is urgently needed, there appears to be (as we saw in Section VI), increasing espousal of the "Perennial Philosophy" premises, which are completely compatible with the elements that Ferkiss claims are required. Whether this seemingly spontaneous emergence of a new outlook is fortuitous coincidence, or the result of unconscious response to a subliminally perceived need of society, is a moot but unimportant point. In either event, the coincidence of the need and the emergence increases the likelihood that such a value shift will take place.

If, indeed, the foregoing analysis is sound and the challenge of the times is as represented, then it would appear that responding to this challenge is an educational task of the highest priority. In saying this we are not referring solely to the schools. To be sure, it is all of us who need to educate ourselves:

1. To emotional as well as intellectual awareness of the ineluctable fact that we are one race, on one planet, and that only

we can take responsibility for the fate of both, for the stewardship of the future;

2. To the shift in basic premises and operative values necessary for a tolerable future, and to the evidence that such a shift is also congruous with the essential nature of human beings; and

3. To the realisation that even if such a transition is made, the strains on the social structure in the decades just ahead will be required to hold it together.

Let us briefly comment on these three points. In both the first two, changes are implied for the individual which will invoke participation of feelings as well as intellect. It is not enough to be intellectually aware that at this point in history nationalism is a suicidal course, or that it would be desirable for people to be differently motivated. Emotional and conative faculties must be engaged. If these two points are to be implemented, educational experiences must be contemplated which are akin to psychotherapy in that they aim at bringing the individual into closer touch with himself, to where he makes his own discoveries that result in a felt realisation of the inevitability of one inseparable world, and a felt shift in the most basic values and premises on which one builds one's life. In a sense, this means bringing something like the "person-changing technology", as discussed in Section V, into the educational system. Education to develop an ecological sense is education toward total sensibility. This is radical doctrine. It is a step not to be made lightly, nor in the absence of the third component.

As to this third point, what it means, bluntly stated, is that the nation will require in the years just ahead a strong order-maintaining and justice-dispensing system and a reversal of the image of police-as-oppressor which is presently held by a large segment of the population. The counter image, of a fair and upright protective force to preserve our delicate and hard-won social values, will not be easily attained. It is a common task for the educational system to carry out together with the forces for order and law.

To implement these three points is no small educational task. From present signs, one would have to judge that there is little likelihood that we will undertake it. Nevertheless, it seems to be what would be implied by taking seriously the analyses which precede.

Concluding remark

In summary, what we have said in all of the foregoing is essentially that one fruitful way to look at our changing society is as a society in process of choice - choice among alternative belief-and-value systems,

choice between ennobling versus debasing images of man, choice of how some sense of coherent authority will be restored.

At the very least, the educational planner wants to keep attuned to trends in this choosing process. In this regard, we seem to be at a crucial point in history. The forces for radical change are growing rapidly; the counterforces likewise. Events of the next few years may very well portend the general direction of movement for decades to come. It is for this reason that we have devoted a significant portion of this paper to an interpretation of the manifest revolutionary forces.

But idealism and concern run strong in educators. Those who wish not only to fit in with the future, but also to participate in the choosing of it, need to understand what is at stake in the choices - the "issues beneath the issues" - and how those deeper concerns relate to the more specifically educational issues. This paper has aspired to be, in some small way, a partial guide to such understanding.

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